MIDDLE RIO GRANDE ENDANGERED SPECIES COLLABORATIVE PROGRAM HABITAT RESTORATION EFFECTIVENESS MONITORING: 2010–2012

Prepared for

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EXECUTIVE SUMMARY

The Middle Rio Grande Endangered Species Collaborative Program's (Program's) goal is to protect and improve the status of the endangered Rio Grande silvery minnow (*Hybognathus amarus*; silvery minnow) and southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher) along the Middle Rio Grande of New Mexico, while at the same time protecting regional water uses from the Rio Grande. A primary objective of the Program is to restore habitats for the two species, including the construction of hydrologic features, such as high-flow side channels. The Program also is mandated to monitor the status of the species' populations along with habitat restoration efforts. SWCA Environmental Consultants was tasked with analyzing habitat restoration monitoring data that were collected by the Program in 2010, 2011, and 2012 from a series of randomly selected habitat restoration sites throughout the Middle Rio Grande. At this time, the Program has not yet developed a habitat restoration effectiveness monitoring plan or specific habitat restoration objectives and effectiveness monitoring evaluation criteria. Under these circumstances, clear objectives to guide the analysis of habitat restoration monitoring data or evaluation criteria have yet to be developed to determine if restoration has been successful. For this project existing data provided by the Program was electronically compiled and summarized to assess how these data may help to define and improve a future monitoring program. In addition, recommendations are provided to assist in providing a conceptual framework for a long term habitat restoration monitoring program based on adaptive management principles.

Fisheries monitoring included sampling randomly selected habitat restoration sites with fyke nets and beach seines to determine if silvery minnow were present on constructed habitat restoration features. Fyke nets were the primary gear type used in 2010, while beach seines were the primary gear type used in 2011. More fish were collected from habitat restoration sites in 2010 than in 2011. For the data sets summarized in this report, silvery minnow was the most commonly collected species with fyke net in 2010, while red shiner (*Cyprinella lutrensis*) was the most commonly collected species with beach seines in 2011. Spring runoff in 2010 was of sufficient magnitude to inundate various habitat restoration sites resulting in a greater diversity of off-channel low-velocity habitat areas. In 2011, spring runoff was below average and the majority of areas sampled with beach seines were main channel areas. Silvery minnow collections differed among habitat restoration sites sampled in 2010 with the greatest relative abundance occurring at the Los Lunas and I-40-1ch habitat restoration sites. It is recommended that habitat restoration sites be sampled relative to intended restoration prescription so that future restoration projects can refine construction methods to increase suitable floodplain habitat for silvery minnow.

Vegetation monitoring included mapping of vegetation patches within 24 randomly selected silvery minnow restoration features. There were no actual definitions of what constituted vegetation patches, and mapped patches changed considerably from 2010 to 2012, apparently due more to variation in sampling protocols than to actual vegetation change. No clear conclusions could be made from the vegetation mapping. Canopy cover of woody vegetation by species and herbaceous vegetation summed over all species were estimated for each vegetation patch within each of the 24 sites. Rank density and height class scores also were applied to woody vegetation by species, and herbaceous vegetation overall. Given that mapped vegetation

polygons were not defined and varied considerably from year to year, canopy cover, density, and height class data were summed over each site for year to year comparisons. The 24 randomly located sites were not stratified by feature type, so adequate replication for statistical testing for changes in parameter values between years by feature type was not possible in most cases. Coyote willow (*Salix exigua*) and cottonwood (*Populus deltoides* spp. *wislizeni*) tended to dominate most sites over the 3-year period, but trends in canopy cover, density, and height classes were not clear. The only statistically significant findings were that coyote willow decreased at bank destabilization features, while cottonwood increased on island destabilization features. In general, native trees tended to dominate restoration features over exotic invasive species such as saltcedar (*Tamarix chinensis*) and Russian olive (*Elaeagnus angustifolia*).

Data included yes or no references to suitable flycatcher habitat and the presence of saltcedar leaf beetles (*Diorhabda carinulata*) at each of the 24 sites. However, there were no descriptions or statements regarding the attributes of flycatcher habitat, so no conclusions could be made relative to the presence of suitable flycatcher habitat. There were no recorded observations of saltcedar leaf beetles at any of the sites in 2012.

Overall, the findings of this monitoring data analysis were inconclusive. We recommend that the Program develop a detailed comprehensive habitat restoration effectiveness monitoring plan, including both species, complete with clearly defined objectives, data sampling designs and protocols, data management, habitat restoration effectiveness evaluation criteria, and an adaptive management process that utilizes information obtained from monitoring. We further recommend that the Program adopt monitoring methods and protocols that are already widely used for environmental monitoring along the Middle Rio Grande, so that information derived from Program monitoring will be consistent with many of the other monitoring efforts.

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1 INTRODUCTION

The Middle Rio Grande Endangered Species Collaborative Program (Program) is a partnership involving 16 current signatories organized to protect and improve the status of endangered species along the Middle Rio Grande (MRG) of New Mexico while simultaneously protecting existing and future regional water uses. The two species of concern are the Rio Grande silvery minnow (*Hybognathus amarus*; silvery minnow) and the southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher). The Program's stated goals are to 1) alleviate jeopardy to listed species in the Program area, 2) conserve and contribute to the recovery of the listed species, 3) protect existing and future water uses, and 4) report to the community at large about the work of the Program (http://www.middleriogrande.com).

One of the objectives of the Program is to create or restore habitats necessary for the silvery minnow and flycatcher. The MRG was once a braided river meandering across a broad floodplain composed of a patchy mosaic of riparian habitats (Scurlock 1998) but has been reduced to a single channel constrained between human-made lateral impediments (levees) and natural lateral impediments (bluffs). Water impoundments and diversions, channelization, and bank stabilization have all contributed to dramatic changes in riverine function and processes in the MRG (Richard and Julien 2003). These actions have largely isolated the contemporary MRG from its floodplain and likely contributed to the endangered status of the silvery minnow and flycatcher under the Endangered Species Act. Many of the current habitat restoration (HR) projects have been designed, in part, to reconnect a portion of the MRG with its adjacent floodplain in order to provide silvery minnow and flycatcher habitat and restore ecosystem function at these sites.

The specific objective of restoration projects for the silvery minnow is to increase habitat complexity to provide a diversity of habitats to accommodate the differing needs of each life stage. Knowledge of how the silvery minnow uses inundated floodplain and other habitats immediately lateral to the river channel could be used to improve future restoration designs. Connecting the floodplain to the river channel represents an effective restoration strategy to create essential low-velocity silvery minnow habitat during high flows, potentially improving the survival of eggs and larvae in those areas. In addition, these projects have the potential to create conditions that benefit the flycatcher by restoring hydrologic processes and increasing abundance of native vegetation and other environmental conditions that could enhance flycatcher habitat.

This report presents findings from an analysis of the Program's HR monitoring data that were measured from a series of HR sites in 2010, 2011 and 2012. The monitoring stated above implies that the objective of silvery minnow monitoring was to determine presence/absence of silvery minnow at HR sites. Presence/Absence of silvery minnow at HR sites could be used to determine the efficacy of the various HR treatments to determine how to better achieve the specific restoration objectives for silvery minnow stated above. The Program's Monitoring Plan Team (MPT 2012) used mesohabitat features at a fine scale and did not replicate samples among the various treatment types being prescribed to the Middle Rio Grande. This approach is beneficial for determining the types of microhabitats that the species encounters and serves to further knowledge regarding the species life history but would not meet the objective stated above regarding the purpose of HR for silvery minnow. A generic analysis of the available fisheries data and recommendation for site selection, future data summarization, and sampling approaches are provided. This generic summary of fisheries data collected by the MPT can be used to meet necessary monitoring requirements for constructed HR sites in the Middle Rio Grande.

The objective of vegetation monitoring was to determine whether a site or HR feature was representative of "desirable MRG habitat." However, the Program has yet to provide specific statements defining specific vegetation attributes of desirable MRG habitat or specific objectives for vegetation monitoring, only that the monitoring was low intensity. Since no specific vegetation monitoring objectives or HR evaluation criteria for terrestrial vegetation were provided, and since the data represent different HR treatment or feature types, the goal of this analysis was to evaluate changes in terrestrial vegetation among the different HR features over the 3-year period and compare dominant native plant species to dominant exotic plant species. This generic analysis of temporal trends in terrestrial vegetation associated with constructed HR features may then be used for various purposes.

The purpose of this report is to 1) analyze the existing data collected by Program signatories, including vegetation and fisheries data; 2) assess how these data may help define and improve a future monitoring program; and 3) to provide recommendations to assist the Corps develop a conceptual framework for a long term habitat restoration monitoring program based on adaptive management principles.

2 METHODS

2.1 HABITAT RESTORATION SITES

The Program's MPT (2012) provided the following description for HR effectiveness monitoring site selection:

> *A total of 63 Program-funded restoration sites throughout the MRG were considered for this monitoring effort. Each site was numbered sequentially from north to south and a random number generator was used to select a subset for monitoring. The MPT reviewed the list and eliminated any sites that were logistically not feasible to sample (e.g., area was too small, the site would not be accessible during high flows, etc.). After the list had been examined, the first 20 randomly-selected sites were identified for monitoring (Table 1, Appendices A and B).*

2.1.1 Fisheries Monitoring Sites

The MPT (2012) indicates that 16 sites were sampled in May 2010. Fisheries files received by SWCA Environmental Consultants (SWCA) contained fisheries collections from eight sites in 2010 and nine sites in 2011. Although the MPT report indicates that 16 sites were sampled, a total of 17 sites were counted in Appendix 2. A listing of HR sites for which data were available for this report is given in Table 2.1.

Table 2.1. Habitat Restoration Sites Where the Silvery Minnow Was Monitored during This Study for Which Data Were Available for This Report

Site	2010 Fisheries Data	2011 Fisheries Data
NDC	Yes	No
PDN-7i	No	Yes
PDN-9i	No	Yes
RGNC	Yes	Yes
I-40-1ch	Yes	No
I-40-2b	Yes	Yes
I-40-4b	Yes	Yes
RT 66	Yes	No
COA-1	Yes	No
Los Lunas	Yes	No
Bel-5	No	Yes
FE-06	No	Yes
LP-2-10-13	No	Yes
Willie Chavez	No	Yes

2.1.2 Vegetation Monitoring Sites

The Program's MPT (2012) provided the following description for low-intensity vegetation monitoring at MRG HR sites:

> *The intent of the vegetation monitoring was to capture the presence or absence (existing conditions) of woody vegetation at each HR site in a manner that would allow a vegetation component to be considered when analyzing the overall functionality of the site based on assumptions of desirable MRG habitat. The successive capture of vegetation conditions on HR sites over time will allow for a more advanced analysis of the functionality of HR in the context of the successional nature of riparian vegetation.*

A listing of the 24 HR sites selected for vegetation monitoring, along with their attributes and which years each was measured, is presented in Table 2.2, and maps showing the locations of all sites are presented in MPT (2012). Listings of which sites were measured for woody vegetation and associated parameters measured are presented in Table 2.3, and sites measured for herbaceous vegetation and associated parameters are presented in Table 2.4. Vegetation was measured from a total of 24 sites in 2010, 2011, and 2012, but not all sites or parameters were measured each year. Woody vegetation was measured from 17 sites in 2010, 20 sites were measured in 2011, including seven additional sites to 2010, and four sites measured in 2010 were not measured in 2011; 19 of the same 20 sites that were measured in 2011 were again measured in 2012 (see Table 2.3). Not all woody vegetation parameters were measured each year at the sites. For example, density class measurements were initiated in 2011. Herbaceous vegetation parameters also were measured from various sites in 2010, 2011, and 2012. Height class was the only parameter measured from 16 sites in 2010 (except cover also at one site) (see Table 2.4). Almost all herbaceous vegetation parameters were measured from 20 sites in 2011, and from 19 sites in 2012, but two sites measured in 2012 were not measured in 2011 (see Table 2.4). Vegetation was mapped and measured from the 24 sites in 2010, 2011, and 2012. Vegetation mapping and measurements also were conducted in October of each year. HR construction or treatments were imposed at those 24 sites from 2002 to 2009, so elapsed time since restoration treatments were imposed ranged from 1 to 8 years when vegetation monitoring was initiated in 2010. The majority of restoration treatments were imposed in 2007, so most of the vegetation monitoring was conducted at sites 3 to 6 years following construction or treatments. No baseline pre-construction measurements were made at any of the 24 sites.

Table 2.2. Habitat Restoration Sites Where Vegetation Was Monitored in This Study, along with Vegetation Polygon Names

Site #	Site Name	Alternative Name	Polygon	Polygon Code	Feature Type	Year Constructed	Year Measured	Target Inundation (cfs)
1	NDC-1ch		1	1-NDC 1 ch-1	High-flow channel	2006	2010	1,000–1,500
1	NDC-1ch		1	1-NDC 1 ch-1	High-flow channel	2006	2011	1,000–1,500
1	NDC-1ch		1	1-NDC 1 ch-1	High-flow channel	2006	2012	1,000–1,500
1	NDC-1ch		2	1-NDC 1 ch-2	High-flow channel	2006	2011	1,000–1,500
1	NDC-1ch		2	1-NDC 1 ch-2	High-flow channel	2006	2012	1,000–1,500
1	NDC-1ch		3	1-NDC 1 ch-3	High-flow channel	2006	2011	1,000–1,500
1	NDC-1ch		3	1-NDC 1 ch-3	High-flow channel	2006	2012	1,000–1,500
1	NDC-1ch		4	1-NDC 1 ch-4	High-flow channel	2006	2011	1,000–1,500
2	PDN-7i		1	2-PDN-7i-1	Island destabilization	2007	2010	3,500
3	PDN-9i		1	3-PDN 9i-1	Island destabilization	2007	2010	?
3	PDN-9i		1	3-PDN 9i-1	Island destabilization	2007	2011	?
3	PDN-9i		1	3-PDN 9i-1	Island destabilization	2007	2012	?
3	PDN-9i		2	3-PDN 9i-2	Island destabilization	2007	2010	?
3	PDN-9i		2	3-PDN 9i-2	Island destabilization	2007	2011	?
3	PDN-9i		2	3-PDN 9i-2	Island destabilization	2007	2012	?
3	PDN-9i		3	3-PDN 9i-3	Island destabilization	2007	2010	?
3	PDN-9i		3	3-PDN 9i-3	Island destabilization	2007	2011	?
3	PDN-9i		4	3-PDN 9i-4	Island destabilization	2007	2010	?
3	PDN-9i		4	3-PDN 9i-4	Island destabilization	2007	2011	?
4	PDN-11i		1	4-PDN 11i-1	Island destabilization	2007	2010	2,500
4	PDN-11i		1	4-PDN 11i-1	Island destabilization	2007	2011	2,500
4	PDN-11i		1	4-PDN 11i-1	Island destabilization	2007	2012	2,500
4	PDN-11i		2	4-PDN 11i-2	Island destabilization	2007	2010	2,500
4	PDN-11i		2	4-PDN 11i-2	Island destabilization	2007	2011	2,500
4	PDN-11i		2	4-PDN 11i-2	Island destabilization	2007	2012	2,500
4	PDN-11i		3	4-PDN 11i-3	Island destabilization	2007	2011	2,500
4	PDN-11i		4	4-PDN 11i-4	Island destabilization	2007	2011	2,500
4	PDN-11i		5	4-PDN 11i-5	Island destabilization	2007	2011	2,500
5	PDN-11i		1	5-PDN 13i-1	Island destabilization	2007	2010	3,500
5	PDN-11i		2	5-PDN 13i-2	Island destabilization	2007	2010	3,500
6	RGNC		1	6-RGNC-1	High-flow channel	2008	2010	2,500
6	RGNC		1	6-RGNC-1	High-flow channel	2008	2011	2,500
6	RGNC		1	6-RGNC-1	High-flow channel	2008	2012	2,500
6	RGNC		2	6-RGNC-2	High-flow channel	2008	2010	2,500

Site #	Site Name	Alternative Name	Polygon	Polygon Code	Feature Type	Year Constructed	Year Measured	Target Inundation (cfs)
6	RGNC		2	6-RGNC-2	High-flow channel	2008	2011	2,500
6	RGNC		2	6-RGNC-2	High-flow channel	2008	2012	2,500
6	RGNC		3	6-RGNC-3	High-flow channel	2008	2010	2,500
6	RGNC		3	6-RGNC-3	High-flow channel	2008	2011	2,500
6	RGNC		3	6-RGNC-3	High-flow channel	2008	2012	2,500
6	RGNC		4	6-RGNC-4	High-flow channel	2008	2010	2,500
6	RGNC		4	6-RGNC-4	High-flow channel	2008	2011	2,500
6	RGNC		4	6-RGNC-4	High-flow channel	2008	2012	2,500
6	RGNC		5	6-RGNC-5	High-flow channel	2008	2010	2,500
6	RGNC		5	6-RGNC-5	High-flow channel	2008	2011	2,500
6	RGNC		5	6-RGNC-5	High-flow channel	2008	2012	2,500
6	RGNC		6	6-RGNC-6	High-flow channel	2008	2010	2,500
6	RGNC		6	6-RGNC-6	High-flow channel	2008	2011	2,500
6	RGNC		6	6-RGNC-6	High-flow channel	2008	2012	2,500
6	RGNC	Embayment N	7	6-RGNC-7	High-flow channel	2008	2011	2,500
6	RGNC		7	6-RGNC-7	High-flow channel	2008	2012	2,500
6	RGNC		8	6-RGNC-8	High-flow channel	2008	2011	2,500
6	RGNC		8	6-RGNC-8	High-flow channel	2008	2012	2,500
6	RGNC		9	6-RGNC-9	High-flow channel	2008	2011	2,500
6	RGNC		9	6-RGNC-9	High-flow channel	2008	2012	2,500
6	RGNC		10	6-RGNC-10	High-flow channel	2008	2011	2,500
7	I-40-2i		1	7-I-40 2i-1	Island destabilization	2008	2011	1,500–3,500
7	I-40-2i		1	7-I-40 2i-1	Island destabilization	2008	2012	1,500–3,500
8	I-40-1ch	Central Wasteway	1	8-I-40 1ch-1	Backwater	2008	2011	1,400
8	I-40-1ch	Central Wasteway	1	8-I-40 1ch-1	Backwater	2008	2012	1,400
8	I-40-1ch	Central Wasteway	2	8-I-40 1ch-2	Backwater	2008	2011	1,400
8	I-40-1ch	Central Wasteway	2	8-I-40 1ch-2	Backwater	2008	2012	1,400
8	I-40-1ch	Central Wasteway	3	8-I-40 1ch-3	Backwater	2008	2011	1,400
8	I-40-1ch	Central Wasteway	3	8-I-40 1ch-3	Backwater	2008	2012	1,400
8	I-40-1ch	Central Wasteway	4	8-I-40 1ch-4	Backwater	2008	2011	1,400
8	I-40-1ch	Central Wasteway	4	8-I-40 1ch-4	Backwater	2008	2012	1,400
8	I-40-1ch	Central Wasteway	5	8-I-40 1ch-5	Backwater	2008	2011	1,400
8	I-40-1ch	Central Wasteway	5	8-I-40 1ch-5	Backwater	2008	2012	1,400
8	I-40-1ch	Central Wasteway	6	8-I-40 1ch-6	Backwater	2008	2011	1,400
9	I-40-2b	Central NE	1	9-I-40 2b-1	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	1	9-I-40 2b-1	High-flow channel	2007	2012	3,500

Site #	Site Name	Alternative Name	Polygon	Polygon Code	Feature Type	Year Constructed	Year Measured	Target Inundation (cfs)
9	I-40-2b	Central NE	2	9-I-40 2b-2	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	2	9-I-40 2b-2	High-flow channel	2007	2012	3,500
9	I-40-2b	Central NE	3	9-I-40 2b-3	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	3	9-I-40 2b-3	High-flow channel	2007	2012	3,500
9	I-40-2b	Central NE	4	9-I-40 2b-4	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	4	9-I-40 2b-4	High-flow channel	2007	2012	3,500
9	I-40-2b	Central NE	5	9-I-40 2b-5	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	5	9-I-40 2b-5	High-flow channel	2007	2012	3,500
9	I-40-2b	Central NE	6	9-I-40 2b-6	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	6	9-I-40 2b-6	High-flow channel	2007	2012	3,500
9	I-40-2b	Central NE	7	9-I-40 2b-7	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	8	9-I-40 2b-8	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	9	9-I-40 2b-9	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	10	9-I-40 2b-10	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	11	9-I-40 2b-11	High-flow channel	2007	2011	3,500
9	I-40-2b	Central NE	12	9-I-40 2b-12	High-flow channel	2007	2011	3,500
10	I-40-4b	Tingley Bar	1	10-I-40 4b-1	Bank destabilization	2007	2010	3,500
10	I-40-4b	Tingley Bar	1	10-I-40 4b-1	Bank destabilization	2007	2011	3,500
10	I-40-4b	Tingley Bar	1	10-I-40 4b-1	Bank destabilization	2007	2012	3,500
10	I-40-4b	Tingley Bar	2	10-I-40 4b-2	Bank destabilization	2007	2010	3,500
10	I-40-4b	Tingley Bar	2	10-I-40 4b-2	Bank destabilization	2007	2011	3,500
10	I-40-4b	Tingley Bar	2	10-I-40 4b-2	Bank destabilization	2007	2012	3,500
10	I-40-4b	Tingley Bar	3	10-I-40 4b-3	Bank destabilization	2007	2010	3,500
10	I-40-4b	Tingley Bar	3	10-I-40 4b-3	Bank destabilization	2007	2011	3,500
10	I-40-4b	Tingley Bar	3	10-I-40 4b-3	Bank destabilization	2007	2012	3,500
10	I-40-4b	Tingley Bar	4	10-I-40 4b-4	Bank destabilization	2007	2011	3,500
10	I-40-4b	Tingley Bar	4	10-I-40 4b-4	Bank destabilization	2007	2012	3,500
10	I-40-4b	Tingley Bar	5	10-I-40 4b-5	Bank destabilization	2007	2011	3,500
10	I-40-4b	Tingley Bar	6	10-I-40 4b-6	Bank destabilization	2007	2011	3,500
10	I-40-4b	Tingley Bar	7	10-I-40 4b-7	Bank destabilization	2007	2011	3,500
10	I-40-4b	Tingley Bar	8	10-I-40 4b-8	Bank destabilization	2007	2011	3,500
11	COA-1	Harrison Middle School	1	11-COA1-1	Bank destabilization	2007	2010	n/a
11	COA-1	Harrison Middle School	1	11-COA1-1	Bank destabilization	2007	2011	n/a
11	COA-1	Harrison Middle School	1	11-COA1-1	Bank destabilization	2007	2012	n/a
11	COA-1	Harrison Middle School	2	11-COA1-2	Bank destabilization	2007	2010	n/a
11	COA-1	Harrison Middle School	2	11-COA1-2	Bank destabilization	2007	2011	n/a

Site #	Site Name	Alternative Name	Polygon	Polygon Code	Feature Type	Year Constructed	Year Measured	Target Inundation (cfs)
11	COA-1	Harrison Middle School	2	11-COA1-2	Bank destabilization	2007	2012	n/a
11	COA-1	Harrison Middle School	3	11-COA1-3	Bank destabilization	2007	2011	n/a
11	COA-1	Harrison Middle School	3	11-COA1-3	Bank destabilization	2007	2012	n/a
11	COA-1	Harrison Middle School	4	11-COA1-4	Bank destabilization	2007	2011	n/a
12	COA-2	SDC	1	12-COA2-1	High-flow channel	2007	2010	n/a
12	COA-2	SDC	1	12-COA2-1	High-flow channel	2007	2011	n/a
12	COA-2	SDC	1	12-COA2-1	High-flow channel	2007	2012	n/a
12	COA-2	SDC	2	12-COA2-2	High-flow channel	2007	2010	n/a
12	COA-2	SDC	2	12-COA2-2	High-flow channel	2007	2011	n/a
12	COA-2	SDC	2	12-COA2-2	High-flow channel	2007	2012	n/a
12	COA-2	SDC	3	12-COA2-3	High-flow channel	2007	2012	n/a
13	SDC-1i	SDC	1	13-SDC 1i-1	Island destabilization	2007	2010	1,400–3,500
13	SDC-1i	SDC	1	13-SDC 1i-1	Island destabilization	2007	2011	1,400–3,500
13	SDC-1i	SDC	1	13-SDC 1i-1	Island destabilization	2007	2012	1,400–3,500
13	SDC-1i	SDC	2	13-SDC 1i-2	Island destabilization	2007	2011	1,400–3,500
14	SDC-5b	Cadillac / Price's Dairy	1	14-SDC 5b-1	Bank destabilization	2007	2010	3,500
14	SDC-5b	Cadillac / Price's Dairy	1	14-SDC 5b-1	Bank destabilization	2007	2012	3,500
14	SDC-5b	Cadillac / Price's Dairy	2	14-SDC 5b-2	Bank destabilization	2007	2010	3,500
14	SDC-5b	Cadillac / Price's Dairy	2	14-SDC 5b-2	Bank destabilization	2007	2012	3,500
15	Los Lunas		1	15-Los Lunas-1	High-flow channel	2002	2010	1,500–2,500
15	Los Lunas		2	15-Los Lunas-2	High-flow channel	2002	2010	1,500–2,500
15	Los Lunas		3	15-Los Lunas-3	High-flow channel	2002	2010	1,500–2,500
15	Los Lunas		4	15-Los Lunas-4	High-flow channel	2002	2010	1,500–2,500
15	Los Lunas		5	15-Los Lunas-5	High-flow channel	2002	2010	1,500–2,500
15	Los Lunas		6	15-Los Lunas-6	High-flow channel	2002	2010	1,500–2,500
16	PER-19		1	16-PER 19-1	Bank destabilization	2009	2010	2,500
16	PER-19		1	16-PER 19-1	Bank destabilization	2009	2011	2,500
16	PER-19		1	16-PER 19-1	Bank destabilization	2009	2012	2,500
16	PER-19		2	16-PER 19-2	Bank destabilization	2009	2010	2,500
16	PER-19		2	16-PER 19-2	Bank destabilization	2009	2011	2,500
16	PER-19		2	16-PER 19-2	Bank destabilization	2009	2012	2,500
17	PER-19		1	17-PER 16-1	Bank destabilization	2009	2010	2,500
17	PER-19		1	17-PER 16-1	Bank destabilization	2009	2011	2,500
17	PER-16		1	17-PER 16-1	Bank destabilization	2009	2012	2,500
17	PER-16		2	17-PER 16-2	Bank destabilization	2009	2010	2,500
17	PER-16		2	17-PER 16-2	Bank destabilization	2009	2011	2,500

Site #	Site Name	Alternative Name	Polygon	Polygon Code	Feature Type	Year Constructed	Year Measured	Target Inundation (cfs)
17	PER-16		2	17-PER 16-2	Bank destabilization	2009	2012	2,500
17	PER-16		3	17-PER 16-3	Bank destabilization	2009	2010	2,500
17	PER-16		3	17-PER 16-3	Bank destabilization	2009	2011	2,500
17	PER-16		3	17-PER 16-3	Bank destabilization	2009	2012	2,500
17	PER-16		4	17-PER 16-4	Bank destabilization	2009	2010	2,500
17	PER-16		4	17-PER 16-4	Bank destabilization	2009	2011	2,500
17	PER-16		5	17-PER 16-5	Bank destabilization	2009	2011	2,500
17	PER-16		6	17-PER 16-6	Bank destabilization	2009	2011	2,500
18	LP1-1		1	18-LP1 1-1	Bank destabilization	2009	2010	2,500–3,000
18	LP1-1		1	18-LP1 1-1	Bank destabilization	2009	2011	2,500–3,000
18	LP1-1		1	18-LP1 1-1	Bank destabilization	2009	2012	2,500–3,000
18	LP1-1		2	18-LP1 1-2	Bank destabilization	2009	2010	2,500–3,000
18	LP1-1		2	18-LP1 1-2	Bank destabilization	2009	2011	2,500–3,000
18	LP1-1		2	18-LP1 1-2	Bank destabilization	2009	2012	2,500–3,000
18	LP1-1		3	18-LP1 1-3	Bank destabilization	2009	2012	2,500–3,000
19	LP1-3		1	19-LP1 3-1	High-flow channel	2009	2010	1,500–2,500
19	LP1-3		1	19-LP1 3-1	High-flow channel	2009	2011	1,500–2,500
19	LP1-3		1	19-LP1 3-1	High-flow channel	2009	2012	1,500–2,500
19	LP1-3		2	19-LP1 3-2	High-flow channel	2009	2010	1,500–2,500
19	LP1-3		2	19-LP1 3-2	High-flow channel	2009	2011	1,500–2,500
19	LP1-3		2	19-LP1 3-2	High-flow channel	2009	2012	1,500–2,500
20	Willie Chavez		1	20-Willie Chavez-1	Embayment	2009	2010	2,500–3,000
20	Willie Chavez		1	20-Willie Chavez-1	Embayment	2009	2011	2,500–3,000
20	Willie Chavez		1	20-Willie Chavez-1	Embayment	2009	2012	2,500–3,000
20	Willie Chavez		2	20-Willie Chavez-2	Embayment	2009	2010	2,500–3,000
20	Willie Chavez		2	20-Willie Chavez-2	Embayment	2009	2011	2,500–3,000
20	Willie Chavez		3	20-Willie Chavez-3	Embayment	2009	2010	2,500–3,000
20	Willie Chavez		3	20-Willie Chavez-3	Embayment	2009	2011	2,500–3,000
20	Willie Chavez		4	20-Willie Chavez-4	Embayment	2009	2010	2,500–3,000
20	Willie Chavez		4	20-Willie Chavez-4	Embayment	2009	2011	2,500–3,000
20	Willie Chavez		5	20-Willie Chavez-5	Embayment	2009	2011	2,500–3,000
20	Willie Chavez		6	20-Willie Chavez-6	Embayment	2009	2011	2,500–3,000
23	Bel-5		1	23-Bel 5-1	Bankline bench/ ephemeral channel/bankline terrace/ bankline bench/backwater	2011	2011	2,200/1,500/ 1,500/ 3,000/ 1,500

Site #	Site Name	Alternative Name	Polygon	Polygon Code	Feature Type	Year Constructed	Year Measured	Target Inundation (cfs)
23	Bel-5		2	23-Bel 5-2	Bankline bench/ ephemeral channel/ bankline terrace / bankline bench/ backwater	2011	2011	2,200/1,500/ 1,500/ 3,000/ 1,500
24	STR-4		1	24-STR 4-1	Bankline bench/ backwater/ bankline bench	2011	2011	3,000/1,500/ 3,000
24	STR-4		2	24-STR 4-2	Bankline bench/ backwater/ bankline bench	2011	2011	3,000/1,500/ 3,000
24	STR-4		3	24-STR 4-3	Bankline bench/ backwater/ bankline bench	2011	2011	3,000/1,500/ 3,000
25	SDC-9b/5b	ABQ Phase 2	1	25-SDC 9b/5b-1	Terrace	2009	2011	1,500
25	SDC-9b/5b	ABQ Phase 2	1	25-SDC 9b/5b-1	Terrace	2009	2012	1,500
25	SDC-9b/5b	ABQ Phase 2	2	25-SDC 9b/5b-2	Terrace	2009	2011	1,500
25	SDC-9b/5b	ABQ Phase 2	2	25-SDC 9b/5b-2	Terrace	2009	2012	1,500
25	SDC-9b/5b	ABQ Phase 2	3	25-SDC 9b/5b-3	Terrace	2009	2011	1,500
25	SDC-9b/5b	ABQ Phase 2	3	25-SDC 9b/5b-3	Terrace	2009	2012	1,500
25	SDC-9b/5b	ABQ Phase 2	4	25-SDC 9b/5b-4	Terrace	2009	2011	1,500
25	SDC-9b/5b	ABQ Phase 2	4	25-SDC 9b/5b-4	Terrace	2009	2012	1,500
25	SDC-9b/5b	ABQ Phase 2	5	25-SDC 9b/5b-5	Terrace	2009	2011	1,500
25	SDC-9b/5b	ABQ Phase 2	5	25-SDC 9b/5b-5	Terrace	2009	2012	1,500
25	SDC-9b/5b	ABQ Phase 2	6	25-SDC 9b/5b-6	Terrace	2009	2011	1,500
25	SDC-9b/5b	ABQ Phase 2	7	25-SDC 9b/5b-7	Terrace	2009	2011	1,500
25	SDC-9b/5b	ABQ Phase 2	8	25-SDC 9b/5b-8	Terrace	2009	2011	1,500
25	SDC-9b/5b	ABQ Phase 2	9	25-SDC 9b/5b-9	Terrace	2009	2011	1,500
26	SDC-9i	ABQ Phase 2	1	26-SDC 9i-1	Terrace	2009	2011	2,000
26	SDC-9i	ABQ Phase 2	1	26-SDC 9i-1	Terrace	2009	2012	2,000
26	SDC-9i	ABQ Phase 2	2	26-SDC 9i-2	Terrace	2009	2011	2,000
26	SDC-9i	ABQ Phase 2	2	26-SDC 9i-2	Terrace	2009	2012	2,000
26	SDC-9i	ABQ Phase 2	3	26-SDC 9i-3	Terrace	2009	2011	2,000
26	SDC-9i	ABQ Phase 2	4	26-SDC 9i-4	Terrace	2009	2011	2,000

cfs = cubic feet per second.

Table 2.3. Listing of Woody Vegetation Parameters Measured in 2010, 2011, and 2012

Site No.	Site Name	Parameter														
		Total Ground Cover (bare, sparse, dense %)			Planting Survival (%)			Cover (%)			Height Class			Density Class		
		2010	2011*	2012*	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
1	NDC-1ch	X	X	X				X	X	X	X	X	X		X	X
2	PDN-7i	X						X			X					
3	PDN-9i	X	X	X				X	X	X	X	X	X		X	X
4	PDN-11i	X	X	X				X	X	X	X	X	X		X	X
5	PDN-13i	X						X			X					
6	RGNC	X	X	X	X	X	X	X	X	X		X	X		X	X
7	I-40-2i		X	X					X	X		X	X		X	X
8	I-40-1ch		X	X		X			X	X		X	X		X	X
9	1-40-2b		X	X					X	X		X	X		X	X
10	I-40-4b	X	X	X				X	X	X	X	X	X		X	X
11	COA-1	X	X	X				X	X	X		X	X		X	X
12	COA-2	X	X	X				X	X	X		X	X		X	X
13	SDC-1i	X	X	X				X	X	X	X	X	X		X	X
14	SDC-5b	X		X				X		X	X		X			X
15	Los Lunas	X						X			X					
16	PER-19	X	X	X				X	X	X	X	X	X		X	X
17	PER-16	X	X	X			X	X	X	X	X	X	X		X	X
18	LP1-1	X	X	X				X	X	X	X	X	X		X	X
19	LP1-3	X	X	X				X	X	X	X	X	X		X	X
20	Willie Chavez	X	X	X			X	X	X	X	X	X	X		X	X
23	Bel-5		X						X			X			X	
24	STR-4		X						X			X			X	
25	SDC-9b/5b		X	X					X	X		X	X		X	X
26	SDC-9i		X	X					X	X		X	X		X	X

X denotes that sampling was conducted; blank cells in the table denote that no sampling was conducted.
*bare % only in 2011 and 2012.

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Table 2.4. Listing of Herbaceous Vegetation Parameters Measured in 2010, 2011, and 2012

Site No.	Site Name	Parameter								
		Cover (%)			Height Class			Density Class		
		2010	2011	2012	2010	2011	2012	2010	2011	2012
1	NDC-1ch		X	X	X	X	X		X	
2	PDN-7i				X					
3	PDN-9i		X	X	X	X	X		X	X
4	PDN-11i	X	X	X	X	X	X		X	X
5	PDN-13i				X				X	
6	RGNC		X	X	X	X	X		X	X
7	I-40-2i		X	X		X	X		X	X
8	I-40-1ch		X	X		X	X		X	X
9	1-40-2b		X	X		X	X		X	X
10	I-40-4b		X	X	X	X	X		X	X
11	COA-1		X	X	X	X	X		X	X
12	COA-2		X	X	X	X	X		X	X
13	SDC-1i		X	X	X	X	X		X	X
14	SDC-5b			X	X		X			X
15	Los Lunas				X					
16	PER-19		X	X		X	X		X	X
17	PER-16		X	X	X	X	X		X	X
18	LP1-1		X	X	X	X	X		X	X
19	LP1-3		X	X	X	X	X		X	X
20	Willie Chavez		X	X	X	X	X		X	X
23	Bel-5		X			X			X	
24	STR-4		X			X			X	
25	SDC-9b/5b		X	X		X	X		X	X
26	SDC-9i		X	X		X	X		X	X

X denotes that sampling was conducted; blank cells in the table denote that no sampling was conducted.

2.2 FISHERIES MONITORING

The MPT (2012) provided the following description of fisheries monitoring methods used in 2010:

Each of the selected habitat restoration sites was monitored during the spring runoff from 10-27 May, 2010, for use by silvery minnows. Sampling was scheduled for times when sites were anticipated to be inundated; but because of the variable nature of the flows, some sites were visited below target discharges. In these cases, sampling was conducted on a wetted shoreline area adjacent to the site. Silvery minnow presence/absence was determined at each monitored site using fyke nets and seines. Personnel from the U.S. Army Corps of Engineers and Bureau of Reclamation used rectangular nets (0.5 x 0.5 m, 6.4 mm mesh size) with 5.0 meter wings (5.0 x 0.5 m, 6.4 mm mesh size). US Fish and Wildlife Service personnel used hoop nets (0.6 m hoops, 6.4 mm mesh size) with 3 meter wings. Seining was conducted using a bag seine (4.5 meters x 1.8 meters with 3mm mesh).

Fyke nets were placed at each monitored site in areas that allowed for proper net function (i.e. approximately 0.3 – 0.5 meters deep, low or no current velocity) for two to four hours. Two of the net sets did not collect any fish during the set time, and were subsequently seined with the fyke net to collect fish. At two of the sites, the restoration feature was not inundated, so seining was conducted adjacent to the site and

> *categorized by mesohabitat present at the time of minnow sampling (run, pool, embayment etc.).*

Detailed methods for fisheries monitoring in 2011 were provided in the study files and state:

> *[Rio Grande silvery minnow] will be sampled via a grid sampling technique. Each site was mapped using aerial photography (March 13, 2010) and overlaid with grids of approximately 10mx10m for a seine haul size of 10mx10m to 20x20m maximum. Sampling grid locations should be randomly chosen, the number in proportion to the size of the site. If a chosen grid location is not wetted, that should be noted on the form and the next random grid number should be chosen. For large sites, samples will be stratified by areas.*
>
> *Grids should be sampled using seines. Mesh on seines should be approximately 5mm (3/16 in) and should be 10 to 15 feet in length, recommend 4-6 foot depth. The size of the seine shall be recorded on the data forms. In open areas seines should be pulled rapidly through the habitat. In vegetated areas, fish may need to be scared into the seine by kicking the vegetation or other tactics.* (MPT 2012)

2.2.1 Fisheries Measurements

The MPT (2012) stated that fisheries measurements include:

> *All captured fish were identified, counted, measured for standard length, and released on site.*
>
> *Water depth, velocity, temperature, and dissolved oxygen were measured at the mouth of each net. General mesohabitat type (e.g. run, side channel, backwater) was determined for each fyke net set or seine haul at the time of sampling. These mesohabitat designations do not necessarily match the feature types described in the fourth column of Table 1. This is because not all the sites were inundated at exactly the target flow (e.g. at lower flows a high-flow channel may not be completely connected and therefore functioning as a backwater instead). For some of the sites, geomorphology has changed since the site was first constructed (i.e. Site 15, Los Lunas). Comments received on earlier drafts of this report requested that sample mesohabitat types be consistent with feature type as constructed. After deliberation, the MPT has decided that it would be more useful to describe mesohabitat conditions as they were at the times of sampling because those are the conditions experienced by the fish captured. Catch per unit effort (CPUE) and standard error were calculated per net as number of fish collected per hour set time. Because so few seine samples were taken, CPUE was not calculated for this gear type. Analysis for ANOVA and t-tests were conducted using data analysis tools in Microsoft Excel and SigmaPlot software.* (MPT 2012)

No beach seine data were provided for collections in 2010. Beach seine and fyke net data were both provided for 2011, and no fisheries data were provided for 2012. No distinction was made as to which beach seine samples collected in 2011 were collected from random or from grid sites nor was information provided regarding the level of effort at each site. The MPT (2012) report states that the following information was collected during beach seine sampling:

> *Each Seine haul should have the following information collected with it:*
>
> - *Grid Cell identification*
> - *Surface Area Seined (Length and width in meters)*
> - *Feature Type as constructed*
> - *Habitat Type at present (run, pool, riffle, backwater, embayment, slackwater)*
> - *Habitat Description (vegetation density, cover, other)*
> - *Velocity/depth/substrate collected in at least 5 locations where seine was pulled (recommend a diagonal cross section of area). (Ensure units are recorded– cfs/cms, m)*
> - *Water Quality (Temp/DO/PH)*
> - *Species/number/TL-SL (mm)-Maximum of 20 measurements per species/per seine haul*
> - *Number of samples per area –*
>   - *0-100 grids (10,000m^2) per site – 5 seine hauls*
>   - *100-200 grids – 10 seine hauls*
>   - *Over 200 grids – 15 seine hauls*
>
> *If no RGSM are collected in random sampling – seines should be pulled in "optimal" areas but recorded separately from random sites.* (MPT 2012)

2.2.2 Fisheries Data Management and Analysis

Fyke net data collected in 2010 and provided to SWCA (fish 2010.xls) was summarized four ways for this report: 1) number collected by species and percent composition, 2) total number of silvery minnow collected at each of the surveyed HR sites, 3) the average silvery minnow fish/hour by HR site, and 4) the average silvery minnow fish/hour by HR treatment type.

The adequacy of the 2010 fyke net data set for analysis using parametric tests was assessed by plotting a histogram of the data with CPUE (fish/hour) bins set to 5. To assess normality of the dataset, the Anderson Darling test was used to determine if the distribution of the CPUE fisheries data deviates from normal.

A Wilcoxon rank sum test (Zar 1999) was used to compare CPUE differences between the two HR treatments (bar and high-flow side channel) sampled in 2010. A Kruskal-Wallis analysis of variance (ANOVA) was used to test for CPUE differences among the HR sites sampled in 2010 (Zar 1999). No soak time data were available for CPUE data collected from the Rio Grande Nature Center on May 12, 2010, so these data were not included in the fyke net CPUE data analysis.

Water quality data collected in 2010 was summarized and compared among sites to qualitatively assess for differences and suitability for silvery minnow.

In 2011, fisheries data were collected primarily with beach seines from select HR sites. One fyke net sample was collected on April 28, 2011, from PDN-9i HR site. The data provided were derived from two separate files: MPT Data 2011 (2).xls and MPT fish data from PDN sites.xls. Although both files contain beach seine data, the metadata associated with each contained different information, so statistical analysis was not performed on data collected in 2011. Beach seine data collected in 2011 and provided to SWCA were qualitatively summarized four ways for this report: 1) number of fish collected by species and percent composition by gear type, 2) total number of silvery minnow collected at each of the surveyed HR sites, 3) the total number of fish collected by HR site, and 4) the proportion of sites sampled with each gear type containing silvery minnow. Appendix 1 contains summarized fisheries data.

2.3 Vegetation Mapping

The MPT (2012) provided the following description of vegetation mapping methods:

> *Plant communities at the selected HR sites were mapped 15 October – 3 November 2010 using a modified version of the community-strucxcture classification scheme developed by Hink and Ohmart (1984). Species codes similar to Hink and Ohmart were used and are shown in Table 2. Patches containing similar vegetation type and structure were identified and delineated on recent aerial photographs. For each patch, relative abundance (% cover of each woody species and density on the site) and height of each woody species present were noted. Vegetation type patches were then digitized and quantified using ArcGIS for each HR site.*

2.3.1 Vegetation Measurements: Canopy Cover, Density, Height, and Plantings

Low-intensity vegetation measurements in 2010, 2011, and 2012 were conducted within each mapped vegetation type polygon within each of the sites (see Table 2.3 and Table 2.4). Parameters measured included 1) woody species (trees and shrubs) percent canopy cover, density class estimate, and height class estimate; 2) herbaceous vegetation select species percent canopy cover, density class estimate, and height class estimate; 3) total vegetation percent canopy cover over the ground surface; and 4) survival of planted trees. As stated above, not all parameters were measured each year, and Table 2.3 and Table 2.4 provide summaries of which woody vegetation parameters and which herbaceous vegetation parameters were measured respectively in 2010, 2011, and 2012 over all 24 sites. An example blank field data form used to record data in the field is presented in Figure 2.1.

Vegetation Monitoring Data Sheet (Low Intensity)
2012

Polygon ID				Photos								
Woody Species	Bare Ground	Total Dead	C	CW	NMO	SC	TW	RO	SE	TH		
Planted % Survival												
Natural Regrowth % cover												
Height												
Density												
Herbaceous Species	Cocklebur	Other Weed	Equisetum	Ravenna grass	Other grass	Bulrush	Other rush/sedge	Other herb.				
Natural Regrowth % cover												
Height												
Density												
Notes												

Potential WIFL habitat notes				Y	N
Does the site have potential or borderline potential habitat?					
Should the site be checked again next year for potential habitat?					
Should the site be surveyed next year for WIFL?					

Evidence of Diorhabda?
Y or N
Notes:

Density Class	
a	bare
b	sparse
c	dense
d	medium

Height Class	(ft)
1	0-3
2	3-6
3	6-9
4	9-12
5	>12

Spp. Code	Spp
C	Cottonwood
CW	Coyote Willow
NMO	New Mexico Olive
SC	Salt Cedar
TW	Tree willow
RO	Russian Olive
SE	Siberian Elm
TH	Tree of Heaven

Figure 2.1. Example of a blank MPT field data form that was used to record vegetation data.

Vegetation measurement methods were stated by the MPT (2012):

> *For each patch, relative abundance (% cover of each woody species and density on the site) and height of each woody species present were noted. Height classes were developed and are shown in Table 3. Density classes were also developed and are shown in Table 4. These were subjective and determined by consensus of the team at each site.*

Vegetation height class and density class categories developed by and used by the MPT are presented in Table 2.5 and Table 2.6, respectively. No information is available on how field measurement protocols were developed, how field measurement protocols were conducted, or how height and density classes were derived other than subject decisions made by the MPT.

Table 2.5. Vegetation Density Class Categories

Density Class	Description
a	Bare
b	Sparse
d	Medium
c	Dense

Source: MPT 2012.

Table 2.6. Vegetation Height Class Categories

Height Class	Height in Feet
1	0–3
2	3–6
3	6–9
4	9–12
5	>12

Source: MPT 2012.

2.4 SOUTHWESTERN WILLOW FLYCATCHER HABITAT

One goal of the terrestrial vegetation monitoring was to identify and document potential habitat for the endangered flycatcher that may have been created by restoration treatments. Field visits to sites in October each year for vegetation measurements included evaluation and recording of information from each vegetation patch polygon as having potential for flycatcher habitat (Note: data forms gave no indication of whether "habitat" referred to breeding or migratory habitat, and no criteria were listed as to what environmental characteristics constituted flycatcher habitat). Field data forms provided for yes/no answers to: 1) "Does the site have potential or borderline potential habitat?" 2) "Should the site be checked again next year for potential habitat?" and 3) "Should the site be surveyed next year for flycatchers?" Those data were tabulated in an MS Excel spreadsheet to provide a summary of sites that may have potential flycatcher habitat over the 3-year period. Potential flycatcher suitable habitat data were summarized as a list of sites, with habitat potential indicated as stated above for visual interpretation.

2.5 SALTCEDAR LEAF BEETLES

Saltcedar leaf beetles of the genus *Diorhabda*, especially *D. elongata*, are expanding south from Utah and Colorado into the MRG (Tamarisk Coalition 2013). Monitoring for the presence of saltcedar leaf beetles also was included as part of the terrestrial vegetation monitoring protocols. Any evidence of the beetles (leaf feeding, larvae or adult beetles) was recorded on data forms for each of the sites.

2.6 VEGETATION DATA MANAGEMENT AND ANALYSIS

Vegetation maps were produced by field personnel sketching the different vegetation patches (subjectively determined by species dominance) on aerial images of each HR site during each site visit. The sketched maps were then imported into a geographic information system (GIS) and georeferenced to align them spatially with the 2010 site polygons provided by the Program. The vegetation patches were then digitized as polygons, using the georeferenced sketched maps as guides, and mapped for each site. Separate sets of maps were created for the 2011 and 2012 vegetation polygons. Spatial areas of all vegetation polygons that were mapped each year were calculated.

Tabular vegetation measurement data were recorded on field data forms during each site visit. An example field data form is presented in Appendix 3. All field data forms were scanned as .pdf files to create backup files to safeguard the data stored in a directory of folders and files on a DOS computer operating system. Data were then entered from field data forms in to MS Excel spreadsheet data files.

Woody and herbaceous vegetation data were collected from each of the vegetation type polygons that were mapped at each site during each of the 3 years (with exceptions noted above). Since the vegetation type polygons have yet to be defined, the numbers and spatial configurations of vegetation type polygons varied at each site from year to year, and not all sites were measured each year, values of vegetation parameters within vegetation type polygons per site could not be directly compared from different undefined vegetation polygons each year. Instead, parameter values were averaged over all vegetation polygons within each site, and evaluations of change over the 3 years per parameter were made from averaged values per site. Averages were calculated for continuous measurement data, and median values were calculated for class variables or categorical data. The methods used to calculate parameter average and median values per site per year and to produce data for graphing and statistical analyzes are presented in Table 2.7.

Table 2.7. Calculations Used to Determine Average Values for Continuously Measured Vegetation Parameters and Median Values for Categorical Data, per Site, per Year

Parameter	Analysis Type	Step	Description
Ground Cover	Average	1	Calculated average percent bare ground per year by site *Equation: (sum of % bare ground for all polygons in site) / (number of polygons in site)*
		2	Calculated average percent total cover per year by site *Equation: 100 – (% bare ground)*
Planting Survival	Average	1	Calculated average percent cover of each species by site for each year *Equation: (sum of % cover for all polygons in site) / (number of polygons in site)*
Woody Cover	Average	1	Calculated average percent cover per year for each species by site *Equation: (sum of % cover for species in all polygons in site) / (number of polygons in site)*
		2	Calculated average percent cover per year for each species across all sites *Equation: (sum of average % cover for each species) / (number of sites)*
		3	Calculated average percent cover per year for each species by treatment type *Equation: (sum of average % cover for each species) / (number of sites in feature type)*
Woody Height	Median	1	Calculated median height class per year for each species for each site *Equation: middle value of list of height classes in polygons for each site* **if median was a decimal number, rounded up to nearest whole number*
		2	Calculated median height class per year for each species across all sites *Equation: middle value of median values for each species* **if median was a decimal number, rounded up to nearest whole number*
		3	Calculated median height class per year for each species by treatment type *Equation: middle value of median values for each treatment type* **if median was a decimal number, rounded up to nearest whole number*
Woody Density	Median	1	Calculated median density class per year for each polygon for 2011 data (density classes were recorded by species in 2011, but by polygon in 2012)
		2	Calculated median density class per year for each site
		3	Calculated median density class per year for each feature type
		4	Calculated frequency of density classes per year for each site *Equation: sum (combined value frequency per polygon)*
		5	Calculated total frequency of density classes per year for all sites *Equation: sum (combined value frequency per site)*
Herbaceous Cover	Average	1	Calculated average percent total cover per year for each site *Equation: (sum of total % cover for each polygon) / (number of polygons in site)*
Herbaceous Height	Median	1	Calculated median height class per year for each polygon in each site *Equation: middle value of list of height classes in polygons for each site* **if median is a decimal number, rounded up to nearest whole number*
		2	Calculated median height class per year for each site *Equation: middle value of list of height classes in for each site* **if median was a decimal number, rounded up to nearest whole number*

Parameter	Analysis Type	Step	Description
Herbaceous Density	Median	1	Calculated median density class per year for each polygon for 2011 data (density classes were recorded by species in 2011, but by polygon in 2012)
		2	Calculated median density class per year for each site
		3	Calculated median density class per year for each feature type
		4	Calculated frequency of density classes per year for each site *Equation: sum (combined value frequency per polygon)*
		5	Calculated total frequency of density classes per year for all sites *Equation: sum (combined value frequency per site)*

Data entered from field data forms and calculated as averages and median values over all polygons per site were organized as separate spreadsheets for each year of monitoring (2010, 2011, and 2012), containing the average or median values for each parameter measured. In each spreadsheet, data were separated by parameter into the following tabs (worksheets): Site Information, Geomorphology, Ground Cover, Plantings Survival, Woody Cover, Woody Height, Woody Density, Herbaceous Cover, Herbaceous Height, and Herbaceous Density. A final tab included lists of abbreviations and codes used throughout the spreadsheets. In preparation for analysis, the data from all 3 years were combined into one MS Excel spreadsheet, and data fields not needed for analyses (such as "Notes" in some parameters) were removed. Those worksheet data files that were then used for analysis are presented in Appendix 3.

Final error-checked data files were then summarized and analyzed to provide evaluations of vegetation responses to HR treatments. Since no formal HR evaluation criteria have been developed to provide analytical guidance, only general summaries and analyses were performed to determine the taxonomic composition and physical structure of vegetation across the 24 HR sites and how the composition and structure of vegetation have changed over the 3-year monitoring period. HR effectiveness monitoring vegetation data were analyzed at three different spatial scales: 1) on an HR site by site basis, so trends in vegetation composition and structure could be evaluated for each HR site; 2) on an HR feature type basis, to identify trends and differences in vegetation composition and structure among the various restoration treatment types; and 3) over the entire MRG using data from all 24 sites so changes in vegetation resulting from HR treatments could be evaluated for the entire MRG. There was no replication of vegetation sampling units within HR sites, so no statistical tests could be performed on those data. Trends in parameter values from each site over the 3-year period were displayed in graphical form to enable visual interpretations of trends. Parameter values per site were averaged over the variable number of vegetation patch polygons per site.

The numeric data for this vegetation monitoring study are represented by small sample sizes, unbalanced presence and absence of data for given parameters over the 3-year period, and proportion (%) and categorical class values. Only the woody vegetation canopy cover data, by species, and total herbaceous canopy cover data from sites with certain features (bank destabilization, island destabilization, and high-flow channels) had enough replication to perform limited statistical testing for differences in vegetation cover over time. These data were not appropriate for standard parametric statistical testing utilizing variable means and variances. Instead, non-parametric statistical testing was used for some of these data, as appropriate, and vegetation cover values were averaged over all vegetation patch polygons per site. The Wilcoxon test was performed for tests of significant differences in percent cover of particular species, for total woody and total herbaceous vegetation, and for total ground cover over the sites with bank and island destabilization and high-flow channel features, testing for year by year differences (i.e., values in one year compared to values of one other year). SYSTAT statistical analysis software was used for these analyses.

Vegetation height class and density class data were represented by categories, instead of continuous measured values. Those data could not be directly tested for differences over time. Instead, median height classes and median density classes were calculated (see Table 2.7) and presented graphically for visual interpretation. Tree/Shrub planting survival data were consistently available form only one HR site (RGNC) over the 3-year period, and for only three species. Annual survival data were tabulated by species and for overall percent dead. Since there was no spatial replication, statistical tests could not be performed. Those data were summarized and presented graphically for visual interpretation.

Geomorphology data was collected from HR sites where vegetation monitoring was conducted during 2010. The data are anecdotal and are discussed in the context that they were presented in the MPT report (2012).

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3 RESULTS

3.1 FISHERIES MONITORING

Fisheries monitoring conducted in 2010 with fyke nets (fish 2010.xls) yielded a total of 1,494 fish from seven different species. Silvery minnow were the most commonly collected species, comprising 97% of the catch, or 1,455 individuals of the total collected. The remaining six species comprised less than 3% of the total catch. The next most common species was red shiner (*Cyprinella lutrensis*), which comprised approximately 2% (26 individuals) of the total catch (Table 3.1).

Table 3.1. Total Number and Percent Composition of Fish Collected with Fyke Nets during Spring 2010

Common Name	Species	Number	%
Rio Grande silvery minnow	*Hybognathus amarus*	1,455	97.39
Red shiner	*Cyprinella Lutrensis*	26	1.74
Green sunfish	*Lepomis cyanellus*	4	0.27
Fathead minnow	*Pimephales promelas*	4	0.27
Common carp	*Cyprinus carpio*	2	0.13
Western mosquitofish	*Gambusia affinis*	2	0.13
Flathead chub	*Platygobio gracilis*	1	0.07
Total		**1,494**	**100**

Of the 1,455 silvery minnow collected from HR sites in spring 2010, 86% were collected from the I-40-1ch (557) and Los Lunas (707) HR sites (Figure 3.1). Fewer than 100 silvery minnow were collected from all other surveyed HR sites.

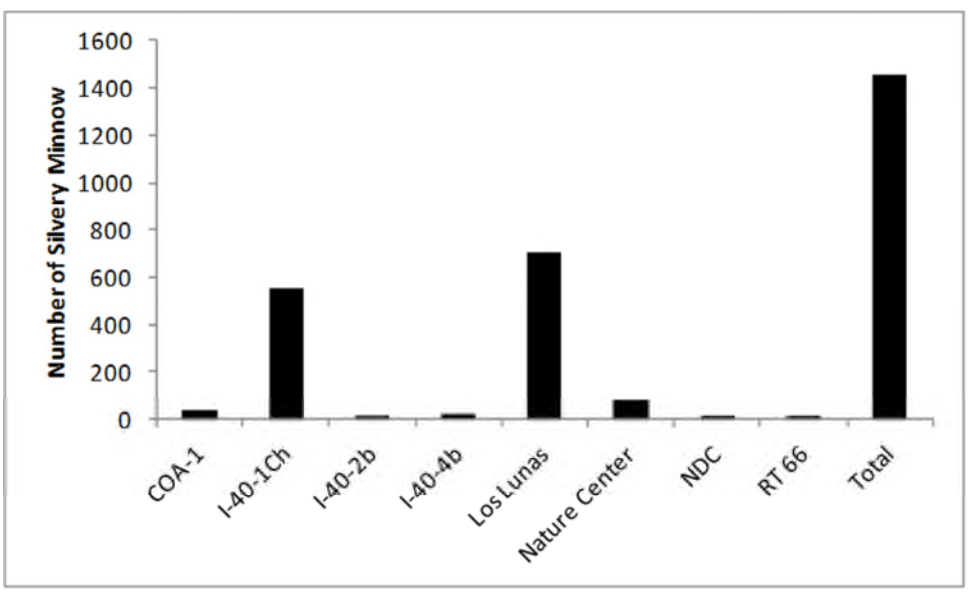


Figure 3.1. Total number of silvery minnow collected from HR sites in spring 2010.

The 2012 MPT reports that statistical tests were performed on the 2010 fyke net data to determine if differences and correlations could be discerned between mesohabitat types and between catch rates and depth and velocity measurements. Statistical tests used by the MPT (2012) include ANOVA, regression analysis, and t-tests. These tests assume that the population/data set in question should be approximately normally distributed. A histogram of the fyke net data and Anderson Darlings test for normality were used to determine the suitability of the fyke net data for parametric test used by the MPT. Fyke net data collected during 2010 was not normally distributed (Anderson Darling test for normality $P < 0.0001$) (Figure 3.2). This finding suggests that fyke net data collected from HR sites is not suitable for statistical analysis using parametric tests in derived form. This type of data has been successfully transformed using loge x+1 transformation (Gonzales et al. 2012) but is better suited for analysis with the more conservative non-parametric distribution free statistical tests, which tend to be more conservative than parametric counterparts (Zar 1999).

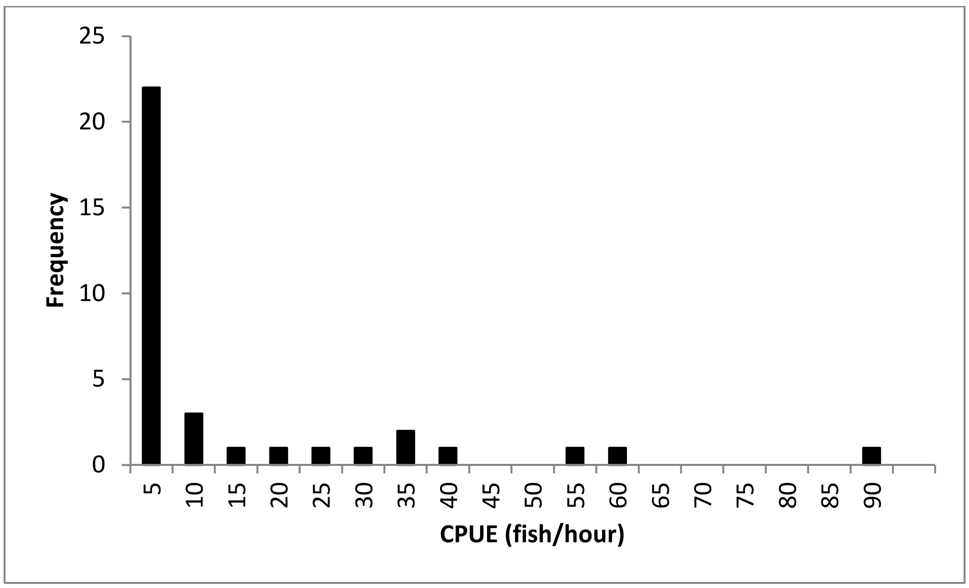


Figure 3.2. Histogram of fyke net catch per unit effort data (CPUE: fish/hour) collected in 2010. Bin sizes are equal to 5 fish/hour.

CPUE varied among sites surveyed with fyke net data in 2010 (Kruskal-Wallis rank sum test p = 0.03). Pairwise comparisons indicate that the differences among sites exist between Los Lunas and COA-1, Los Lunas and I-40-2b, Los Lunas and NDC, Los Lunas RT-66, and between I-40-1ch and NDC (all comparisons P <0.05). All other pairwise comparisons were not significant at α = 0.05 (Figure 3.3).

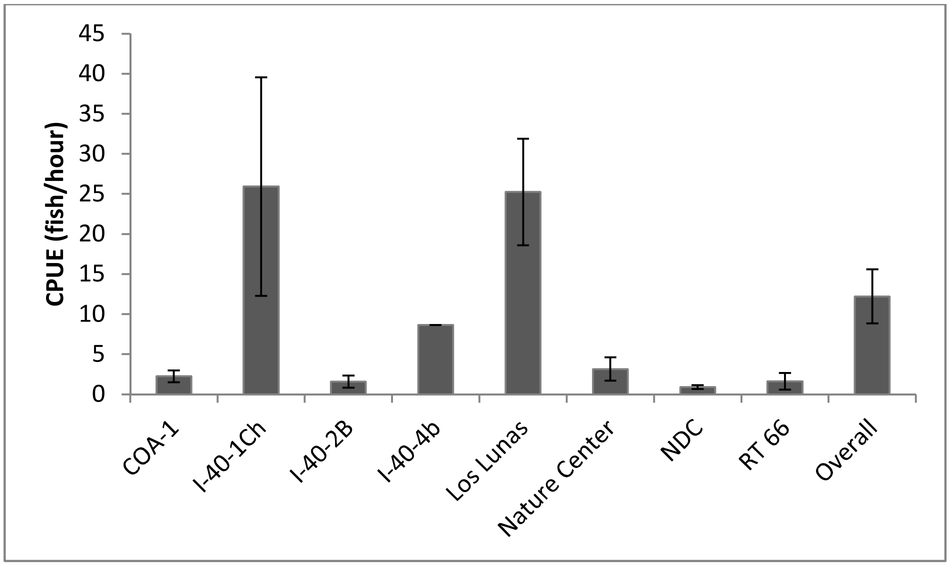


Figure 3.3. Mean CPUE at habitat restoration sites sampled with fyke nets in spring 2010. Error bars denote one standard error.

Although the mean value of CPUE at high-flow channels was greater than the mean value of CPUE at bar sites (Figure 3.4), no statistical difference between restoration treatments sampled in spring 2010 was found (Wilcoxon rank sum test p = 0.7). This result is likely owing to the fact that only seven bar sites were sampled compared to 28 high-flow channel sites.

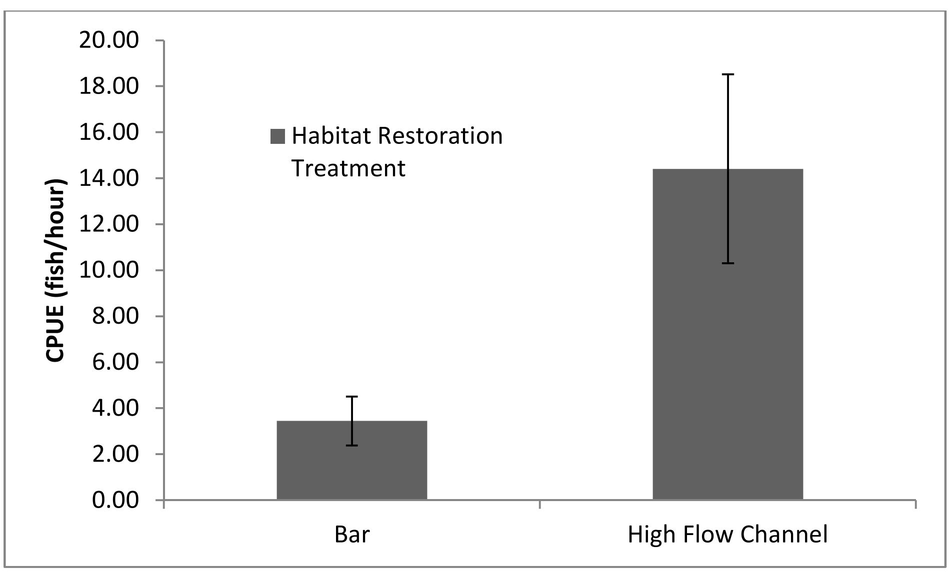


Figure 3.4. Mean CPUE at habitat restoration treatment types sampled in spring 2010. Error bars denote on standard error.

In 2011 beach seines were the principle gear type used. In total, 1,219 fish were collected from HR sites. The majority of fish collected were red shiner, which comprised 81% (992) of the catch (Table 3.2). Unknown larval fish were also commonly collected comprising 9.4% (115) of the catch. One fyke net sample was collected from PDN-9i, yielding 25 red shiners, three fathead minnows (*Pimephales promelas*), and two silvery minnow. Seventy-eight percent of the sites sampled with beach seines did not yield silvery minnow in 2011.

Table 3.2. Total Number and Percent Composition of Fish Collected with Beach Seines and Fyke Nets during Spring 2011

Species	Seine		Fyke		Overall	
	Count	Percent	Count	Percent	Count	Percent
Red shiner	967	81.33	25	83.33	992	81.38
Unknown larval fish	115	9.67	0	0.00	115	9.43
Flathead chub	36	3.03	0	0.00	36	2.95
Longnose dace	28	2.35	0	0.00	28	2.30
Silvery minnow	12	1.01	2	6.67	14	1.15
Western mosquitofish	13	1.09	0	0.00	13	1.07
Fathead minnow	10	0.84	3	10.00	13	1.07
White sucker	4	0.34	0	0.00	4	0.33
Channel catfish	3	0.25	0	0.00	3	0.25
River carpsucker	1	0.08	0	0.00	1	0.08
Total	**1,189**	**100**	**30**	**100.00**	**1,219**	**100**

The majority of fish collected in 2011 were collected from LP-2-10-13 (535) and I-40-4b (152) (Figure 3.5). Catches at other surveyed sites ranged from 52 at the Rio Grande Nature Center to 92 at FE-06.

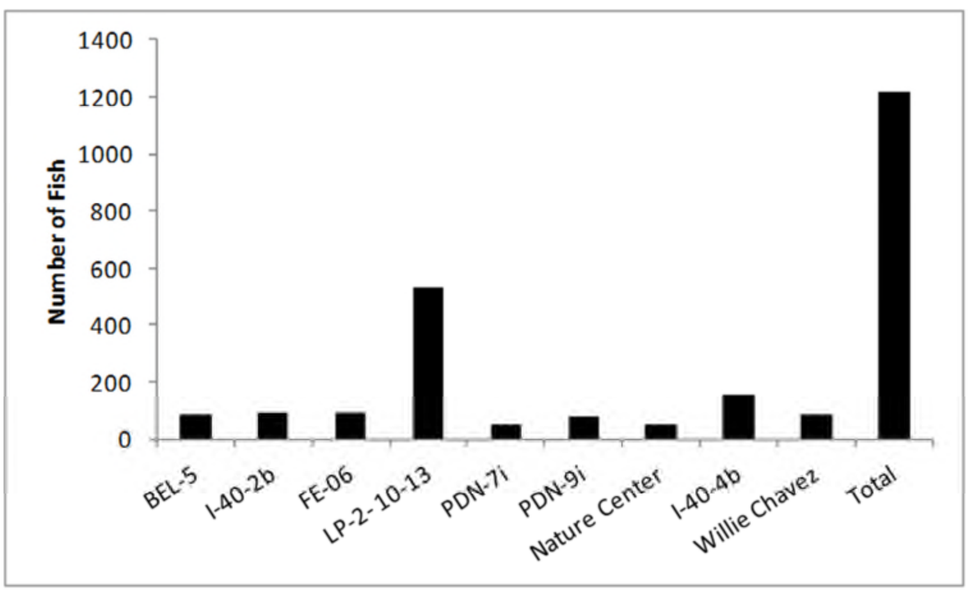


Figure 3.5. Number of fish collected from habitat restoration sites with beach seines and fyke nets in 2011.

Silvery minnow were collected at three of the nine sites sampled in 2011 (Figure 3.6). Eleven silvery minnow were collected at PDN-7i, two were collected at PDN-9i, and one was collected at I-40-2b. Both silvery minnow collected from PDN-9i were collected from the single fyke net set at the site on April 28, 2011. Four seine hauls collected from PDN-9i on the same date did not yield any silvery minnow.

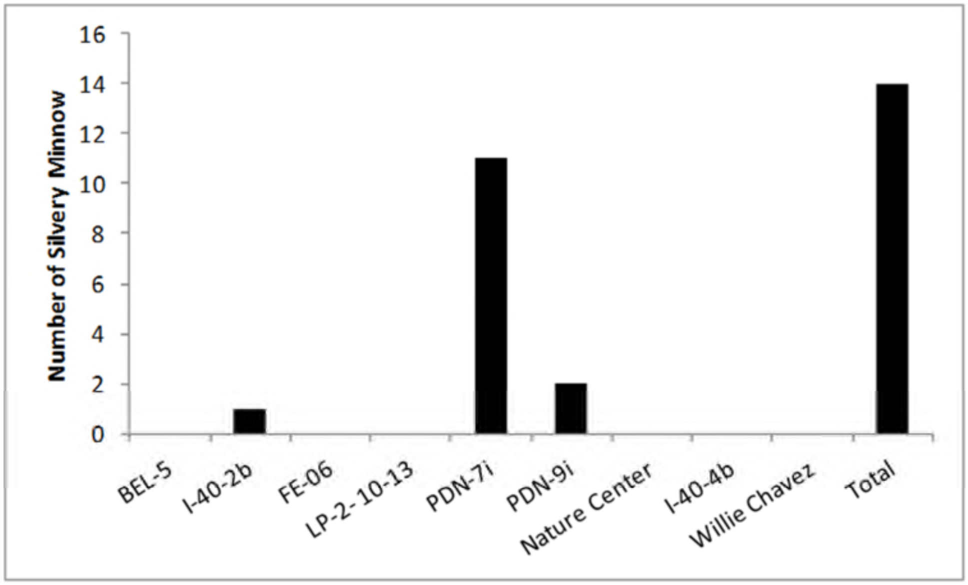


Figure 3.6. Number of silvery minnow collected from habitat restoration sites with beach seines and fyke nets in 2011.

3.1.1 Water Quality at Fisheries Monitoring Sites

Water quality data was collected from HR sites where fisheries monitoring occurred in 2010 (Table 3.3). The data indicates that depths and velocities of survey locations were similar as were water temperature and dissolved oxygen. Temperature and dissolved oxygen were within the range of those considered suitable for silvery minnow.

Table 3.3. Mean Water Quality Values Collected from Habitat Restoration Sites in 2010

Site	Depth	Velocity(m/s)	Water Temperature (°C)	Dissolved Oxygen (mg/L)
I40-2b	0.43	0.25	18.20	7.08
I40-1ch	0.32	0.00	15.85	8.49
Harrison	0.32	0.04	19.23	7.52
Los Lunas	0.48	0.03	18.47	6.26
NDC	0.31	0.31	12.23	8.26
Nature Center	0.37	0.00	14.85	7.47
Route 66	0.39	0.03	16.35	7.65
I40-4b	0.30	0.06	17.30	6.19
Overall	**0.36**	**0.09**	**16.56**	**7.37**

3.2 VEGETATION MONITORING

3.2.1 Vegetation Maps and Polygons

Maps of each of the 24 sites where vegetation was monitored in 2010, 2011, and 2012, showing each of the vegetation polygons designated in each of the 3 years, are presented in Appendix 4. Summaries of tabular data for each of the parameters measured (e.g., woody vegetation cover, woody vegetation density classes) from each vegetation polygon at each site for each of the 3 years are presented in Appendix 3. Dimensions of each vegetation polygon at each site in 2011 and 2012 also are presented in Appendix 3 (Table 9).

As stated above, vegetation polygon definitions are unknown and varied considerably from year to year as indicated by changes in mapped polygons. Year to year changes in polygons at sites appeared to result from different interpretations of vegetation and polygons rather than actual changes in vegetation composition and structure (see maps in Appendix 4). Therefore, all vegetation data variables were averaged over all vegetation polygons per site per year, and those data were used for analyzes below.

3.2.2 Woody Vegetation Canopy Cover

Woody Vegetation Canopy Cover by Species and Sites

This section presents findings on the patterns of canopy cover of the woody plant species measured across the different sites and features, with a focus on spatial and temporal patterns of each plant species.

Twelve species of woody plants were selected for monitoring across the sites from 2010 to 2012. A listing of those 12 species, names used by the MPT and U.S. Department of Agriculture (USDA) PLANTS Database (USDA 2013), common names, and their native/exotic status are presented in Table 3.4. The USDA PLANTS Database provides a standard and widely used listing of North American plants, their taxonomy, and common and scientific names. Names used by the MPT tend to be used regionally (e.g., Carton et al. 2008), and the MPT common names are used in this report.

Table 3.4. Woody Plant Species Monitored across the 24 sites, 2010–2012

MPT Common Name	USDA PLANTS Database Common Name	Scientific Name (USDA PLANTS Database)	Native/ Exotic
Cottonwood	Rio Grande cottonwood	*Populus deltoides* spp. *wislizeni*	Native
Coyote willow	Narrowleaf willow	*Salix exigua*	Native
False indigo bush	False indigo bush	*Amorpha fruticosa*	Native
Gooding's willow	Goodding's willow	*Salix gooddingii*	Native
Mulberry	White mulberry	*Morus alba*	Exotic
New Mexico olive	Stretchberry	*Forestiera pubescens*	Native
Russian olive	Russian olive	*Elaeagnus angustifolia*	Exotic
Saltcedar	Five-stamen tamarisk	*Tamarix chinensis*	Exotic
Seepwillow	Willow baccharis	*Baccharis salicina*	Native
Siberian elm	Siberian elm	*Ulmus pumila*	Exotic
Skunkbush	Skunkbush sumac	*Rhus trilobata*	Native
Tree of heaven	Tree of heaven	*Ailanthus altissima*	Exotic

Percent canopy cover of all woody plant species measured over all 24 sites in 2010, 2011, and 2012 are presented in Figure 3.7. Coyote willow had the greatest canopy cover of all woody plant species over all sites and years. Overall, coyote willow cover declined considerably from 2010 to 2011 and increased slightly in 2012, but over the 3 years declined considerably over all sites and restoration features. Cottonwood had the second highest canopy cover of woody plant species across all sites. Overall cottonwood canopy cover declined from 2010 to 2011, then increased again in 2012, resulting in an overall increased cover over the 3 years. Goodding's willow (*Salix gooddingii*) canopy cover was relatively low, and cover remained similar across all sites from 2010 to 2012. Russian olive had the third highest overall canopy cover, decreasing in 2011, but increasing in 2012 to cover greater than in 2010. Saltcedar had the fourth highest cover, also decreasing in 2011, but increasing in 2012 for an overall increase over the 3 years. Goodding's willow had the fifth highest cover, also decreasing in 2011, but increasing in 2012 for an overall slight increase over the 3 years. All other species represented a very small proportion of the woody vegetation canopy cover or were absent across all sites.

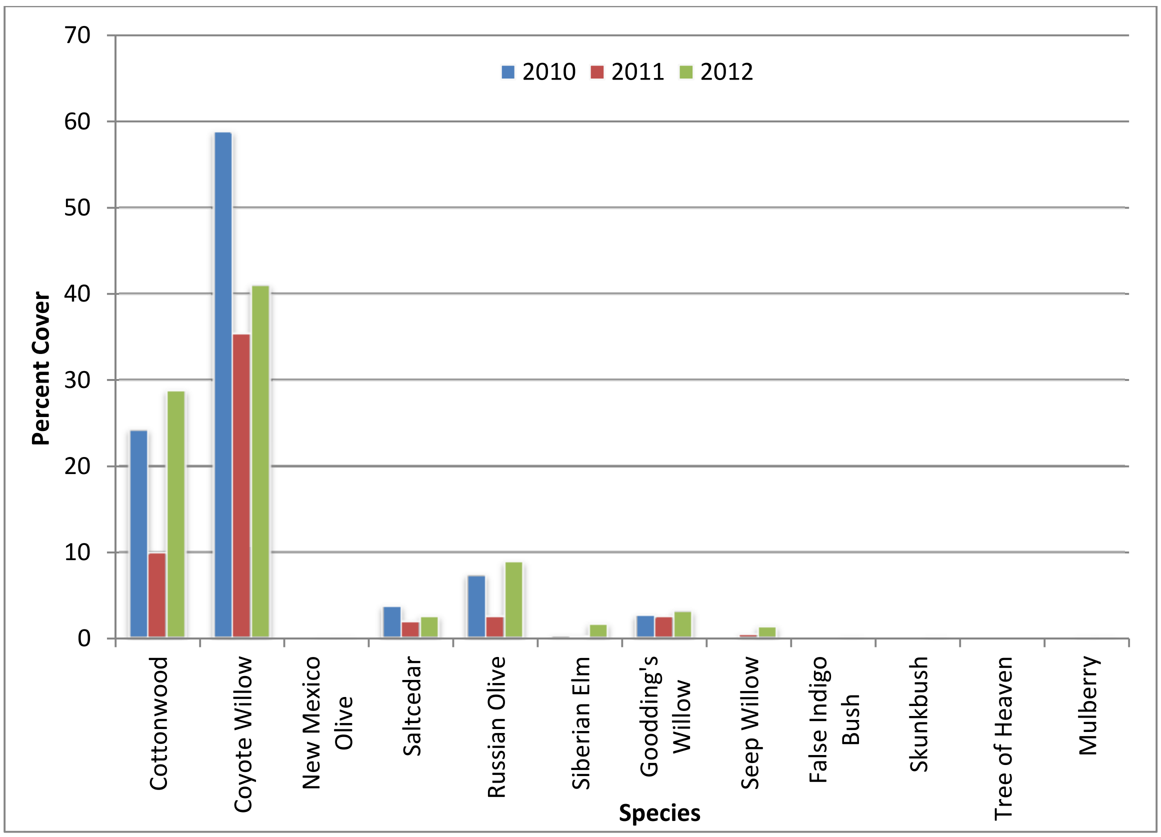


Figure 3.7. Percent canopy cover of all tree and shrub species monitored, averaged over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in canopy cover of native coyote willow across all sites and feature types over the 3 years is presented in Figure 3.8. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the sites were not measured some years (see Table 2.2 above). Coyote willow tended to have the greatest canopy cover across the bank and island destabilization features and high-flow channel features. Across bank destabilization features, coyote willow largely declined in c anopy cover from 2010 to 2011, and increased again in 2012, but with considerably less canopy cover than in 2010. Coyote willow cover also was high across most of the island destabilization features in 2010, but declined considerably in 2011, and then increased again in 2012, but not to 2010 levels. At island destabilization features not measured in 2010, coyote willow increased from 2011 to 2012. Coyote willow cover also tended to be high across high-flow channel features, showing the same trends as other features: greatest cover in 2010, decline in 2011, and an increase in 2012, but overall declining from 2010 to 2012. The one terrace feature was not measured in 2010 and showed large increases in coyote willow cover between 2011 and 2012. The one embayment feature was measured in 2011 and 2012 and showed an increase in coyote willow cover; the other backwater feature was not measured in 2012 and showed an increase in coyote willow between 2010 and 2011. The two sites with multiple features were measured only in 2011, so trends cannot be determined.

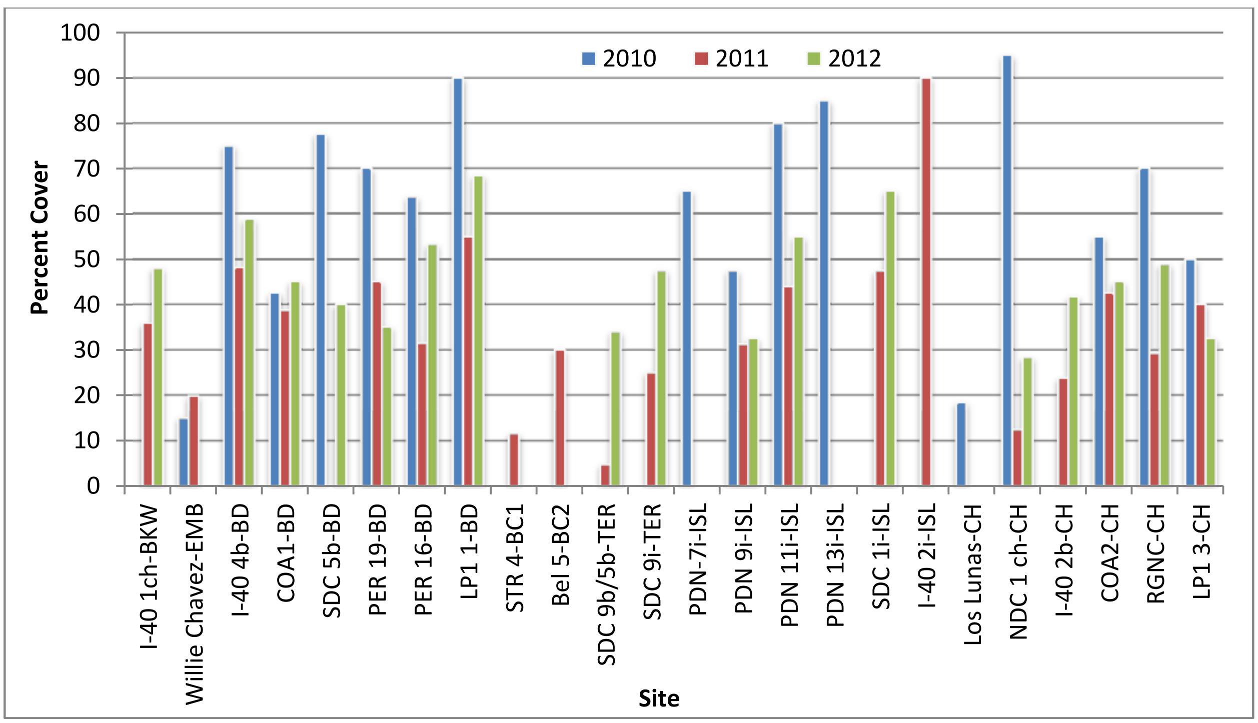


Figure 3.8. Coyote willow percent canopy cover averaged over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in canopy cover of native cottonwood across all sites and feature types over the 3 years is presented in Figure 3.9. Sites where no values exist for certain years do not necessarily represent zero values. In some cases, the site or species were not measured some years. As with coyote willow, cottonwood canopy cover tended to be highest across bank and island destabilization features and high-flow channel features. Cottonwood cover showed mixed trends across bank destabilization features, increasing at some sites, not changing at others, and decreasing at other sites. Overall, cottonwood cover declined considerably at the COA-1 and PER-16 sites, and increased considerably at the PER-19 and LP1 sites, while remaining relatively static at the other sites. Across the island destabilization sites, cottonwood cover increased considerably at the I-40-2i and PDN-9i and PDN-11i sites over the 3-year period, despite cover declines in 2011 at the PDN features. Cottonwood cover trends were variable across the high-flow channel sites, increasing at three sites while decreasing at two sites, and trend data lacking from one site. Cottonwood cover increased at both terrace features, but data are lacking for 2010. The one backwater site showed an increase in cottonwood cover, the one embayment site showed a decrease in cottonwood cover, and the two combined feature sites had data only from 2011.

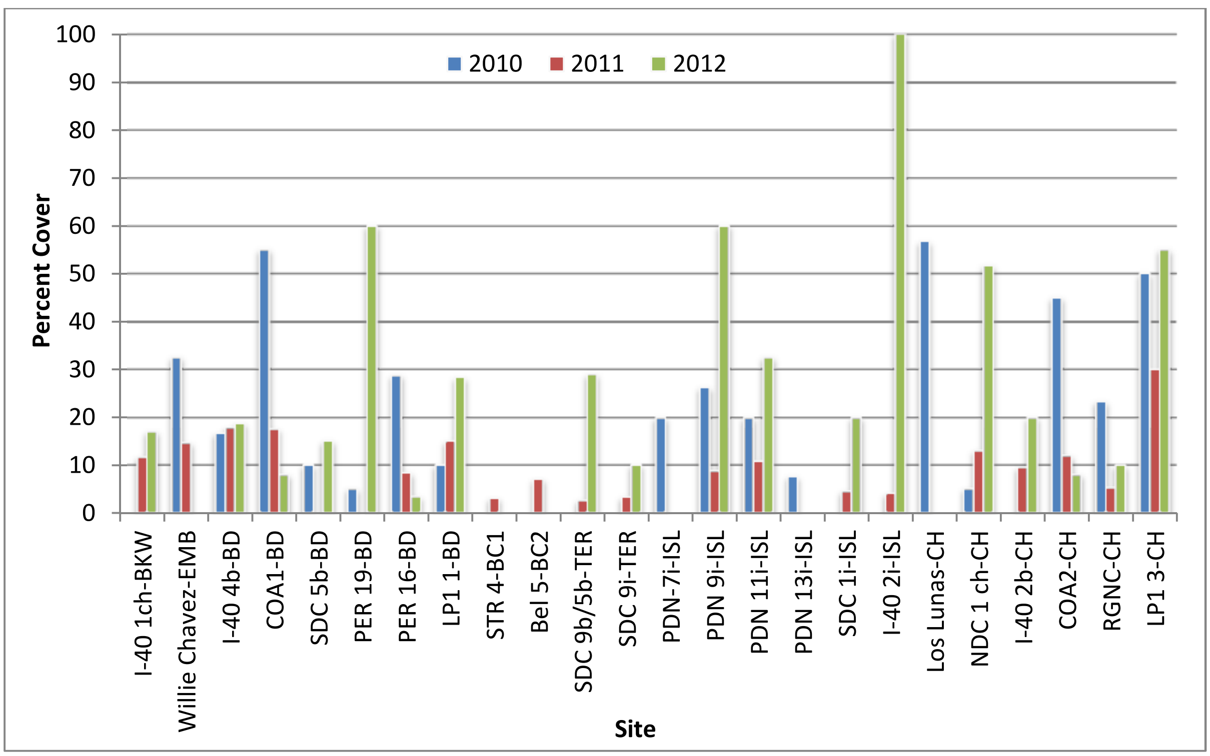


Figure 3.9. Cottonwood percent canopy cover averaged over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in canopy cover of native Goodding's willow across all sites and feature types over the 3 years is presented in Figure 3.10. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Goodding's willow cover was greater than 20% at only one site and two bank destabilization features, PER-19 and PER-16. At that site, Goodding's willow cover showed no change over the 3 years, except for a great decline during 2011 at the PER-19 site. There were no obvious spatial or temporal patterns for Goodding's willow cover across all of the other sites and features, except for the lack of data for most years at most sites. Overall, saltcedar cover was relatively low across all sites and features, never surpassing 30% cover.

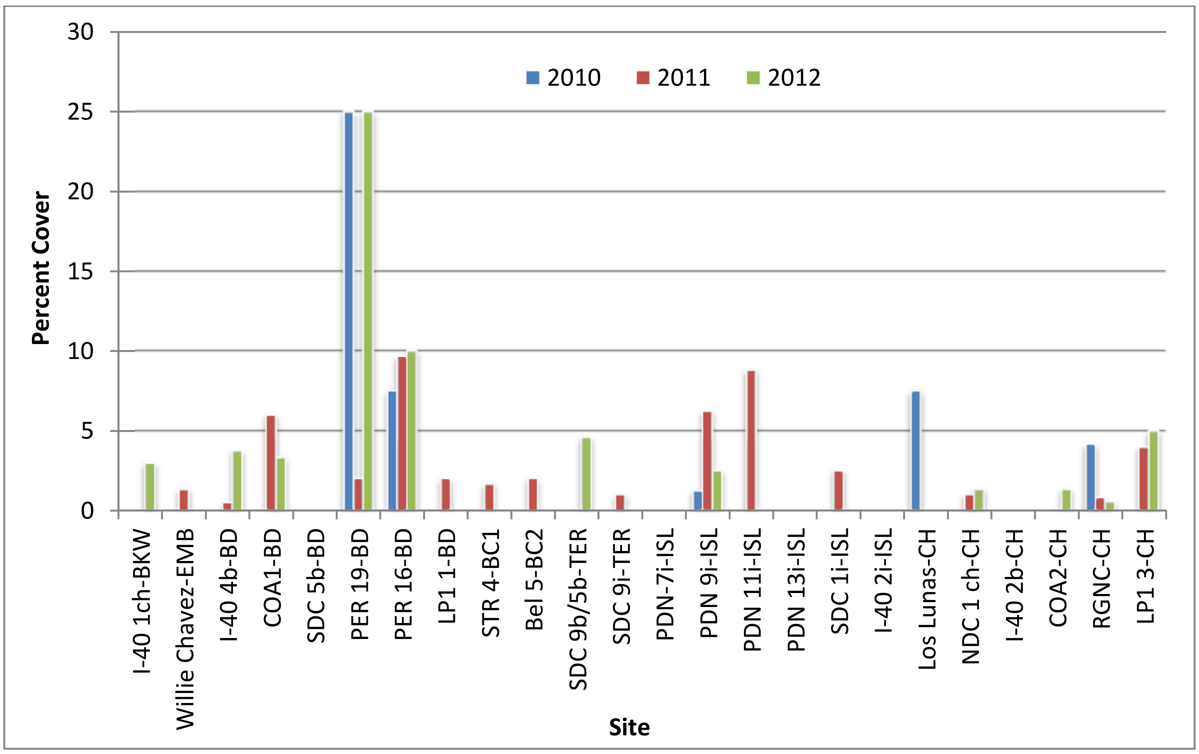


Figure 3.10. Goodding's willow percent canopy cover averaged over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in canopy cover of exotic saltcedar across all sites and feature types over the 3 years is presented in Figure 3.11. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Saltcedar cover was greatest at the Willie Chavez site embayment feature in 2010, declining in 2011, and absent or not measured there in 2012. Saltcedar cover greatly increased at the PDN-11i site and island destabilization feature between 2011 and 2012. Otherwise, saltcedar cover changed little across the remaining sites and features where it was measured for more than 1 year. Overall, saltcedar cover was relatively low across all sites and features, never surpassing 30% cover.

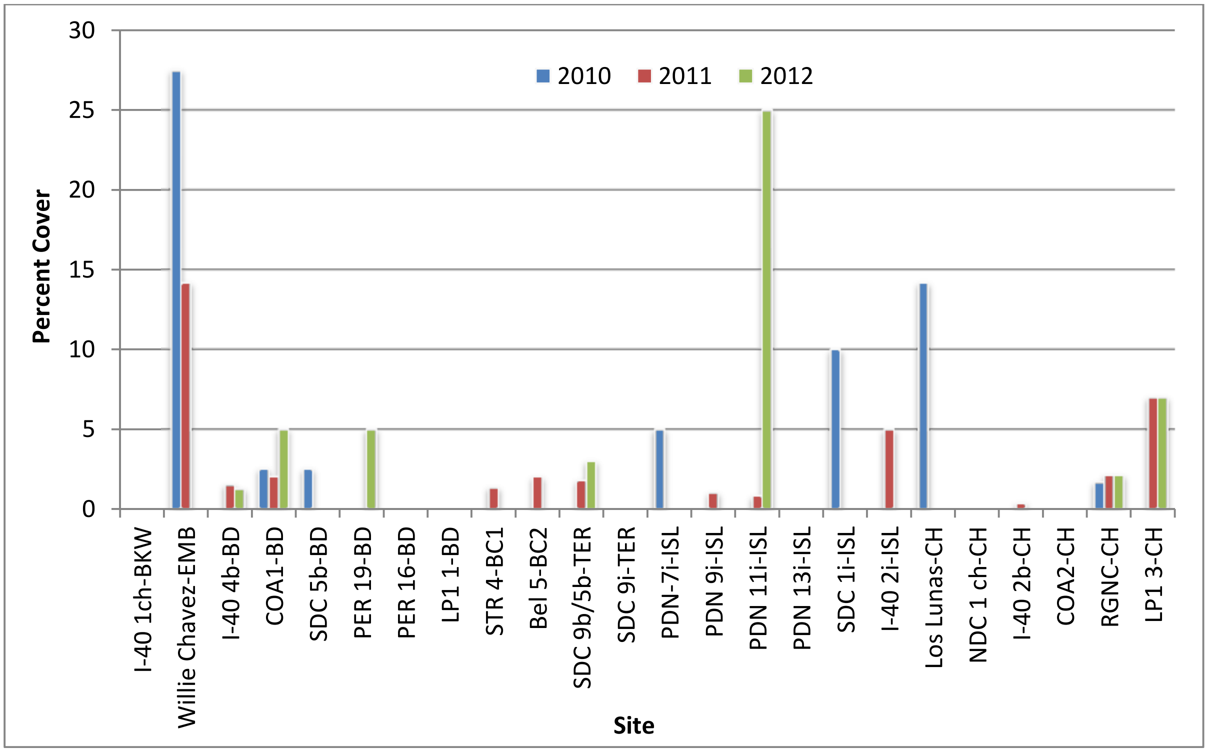


Figure 3.11. Saltcedar percent canopy cover averaged over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in canopy cover of exotic Russian olive across all sites and feature types over the 3 years is presented in Figure 3.12. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Russian olive had the highest cover values at the SDC-1i island destabilization site and feature in 2010, and then declined in cover there in 2011 and remained low in 2012. Russian olive showed great increases in cover over time at four other sites and features, the COA-1 and SDC bank destabilization features, the SDC-9b combination feature site, and the PDN-11i island destabilization feature. Otherwise, Russian olive canopy cover was relative low across the remaining sites and features, and showed no consistent trends.

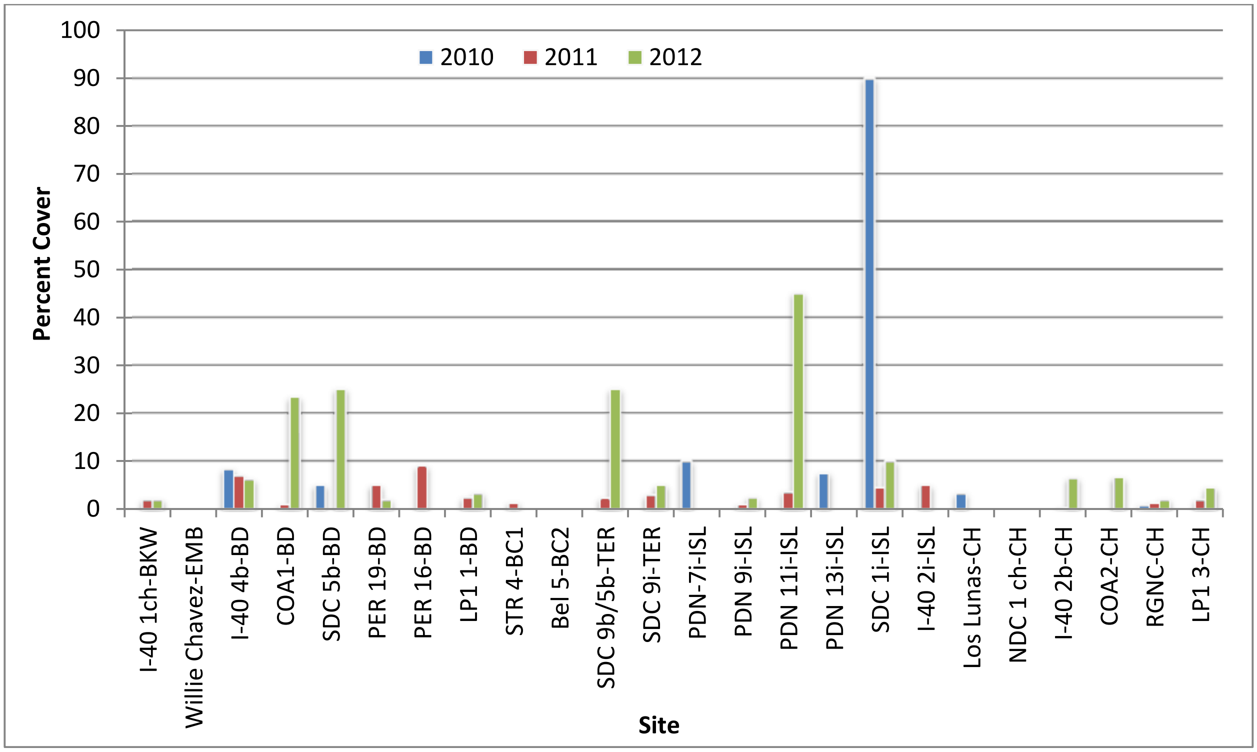


Figure 3.12. Russian olive percent canopy cover averaged over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in canopy cover of exotic Siberian elm (*Ulmus pumila*) across all sites and feature types over the 3 years is presented in Figure 3.13. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Siberian elm cover was relatively low across all of the sites and features, never surpassing 20% cover. Siberian elm cover increased considerably at the SDC-5b and COA-1 bank destabilization features in 2012, and somewhat at the PDN-9i island destabilization feature in 2012.

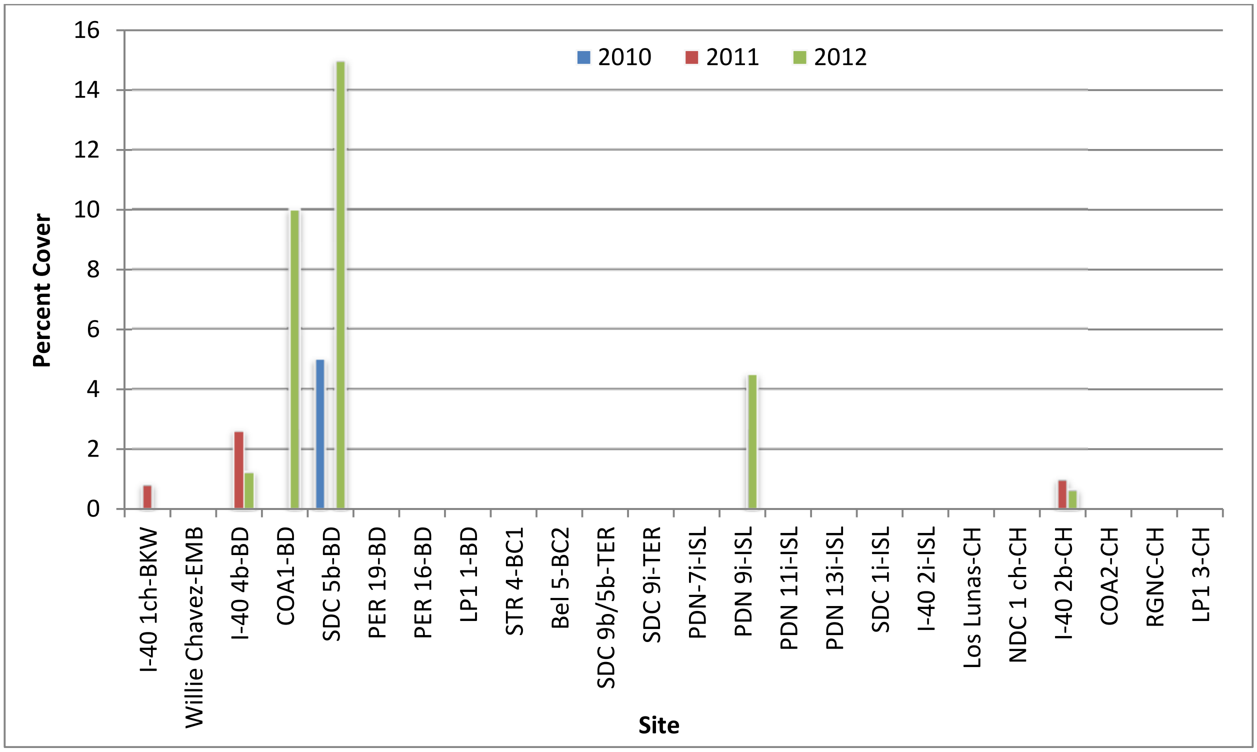


Figure 3.13. Percent canopy cover of Siberian elm averaged over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Canopy cover values for other woody species measured and presented above in Figure 3.1 were very low and are not presented individually here.

3.2.3 Woody Vegetation Canopy Cover by Species and Habitat Restoration Feature Type

This section of this report presents findings on the patterns of canopy cover of the woody plant species measured across the different sites and features, with a focus on patterns among each of the sites and features. These are the only data that were used to test for differences in canopy cover by species over the 3 years among feature types. Only bank and island destabilization and high-flow channel features were represented by enough sites (6 each) to perform tests.

Backwater Features

Change in woody vegetation canopy cover measured at the one backwater feature, I-40-ch, in 2011 and 2012, is presented in Figure 3.14. Native coyote willow and cottonwood were the dominant species and both increased in cover from 2011 to 2012. Other species were represented by very small canopy cover. Data were not sufficient for statistical testing.

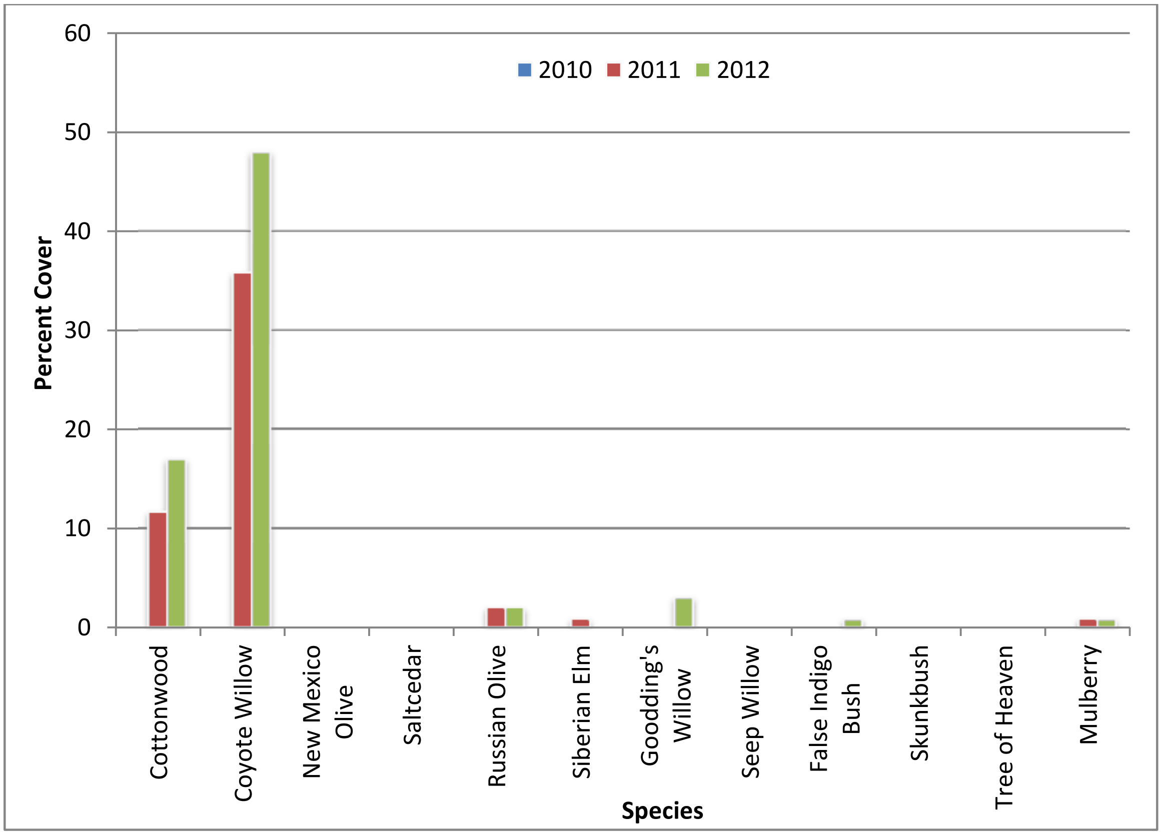


Figure 3.14. Percent canopy cover of each woody plant species averaged over the I-40 site backwater feature vegetation polygons in 2010, 2011, and 2012.

Embayment Features

Change in woody vegetation canopy cover measured at the one embayment feature; the Willie Chavez site, in 2010 and 2011, is presented in Figure 3.15. The dominant species at this site were native cottonwood and coyote willow, as well as exotic saltcedar. Cottonwood and saltcedar cover declined between 2010 and 2011, while coyote willow cover increased slightly over the same time period. All other species were not represented or by very low cover values. Data were not sufficient for statistical testing.

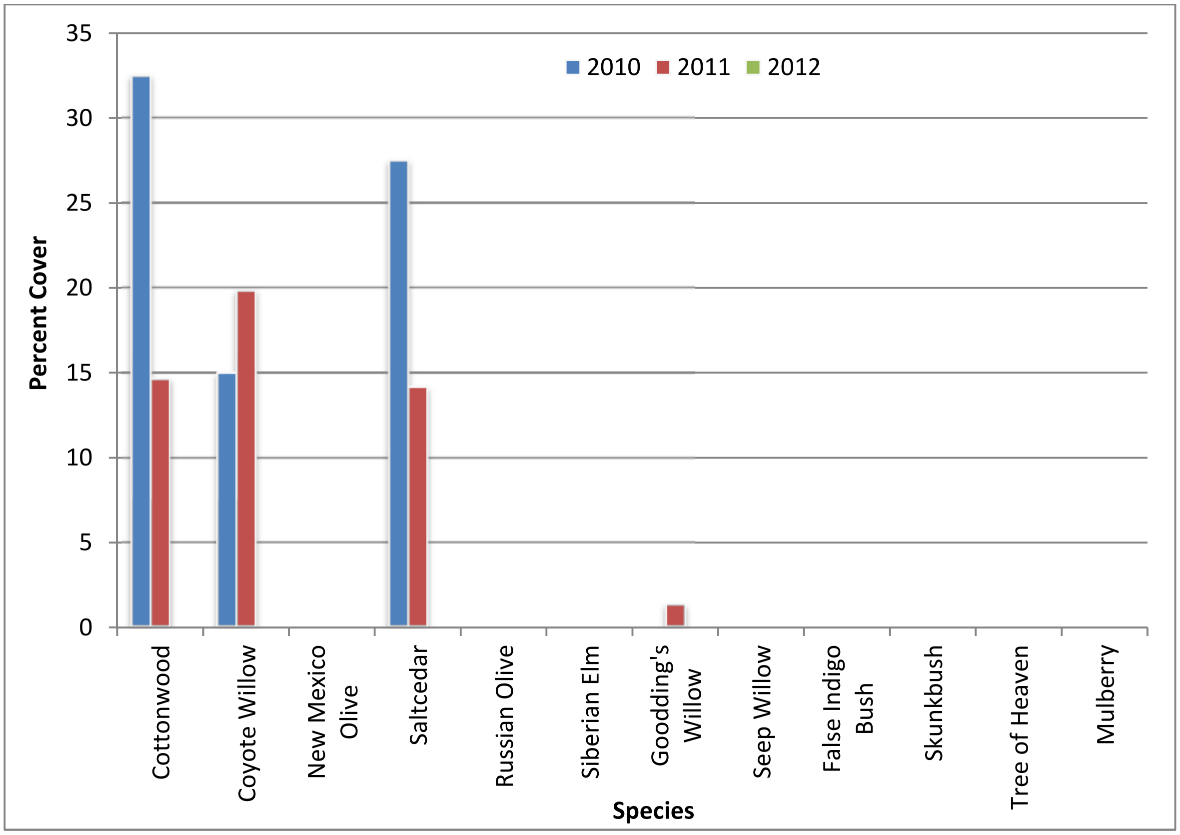


Figure 3.15. Percent canopy cover of each woody plant species averaged over the Willie Chavez site embayment feature vegetation polygons in 2010, 2011, and 2012.

Bank Destabilization Features

Change in woody vegetation canopy cover measured at six bank destabilization features is presented in Figure 3.16. Native coyote willow and cottonwood were the two dominant species across bank destabilization features, and coyote willow declined in cover over the 3-year period while cottonwood cover remained static. Native Goodding's willow had very low cover and increased slightly over time. The exotic species Russian olive and saltcedar were represented by low canopy cover, but both increased slightly over the 3-year period. Wilcoxon test results revealed that only the decline in coyote willow was statistically significant.

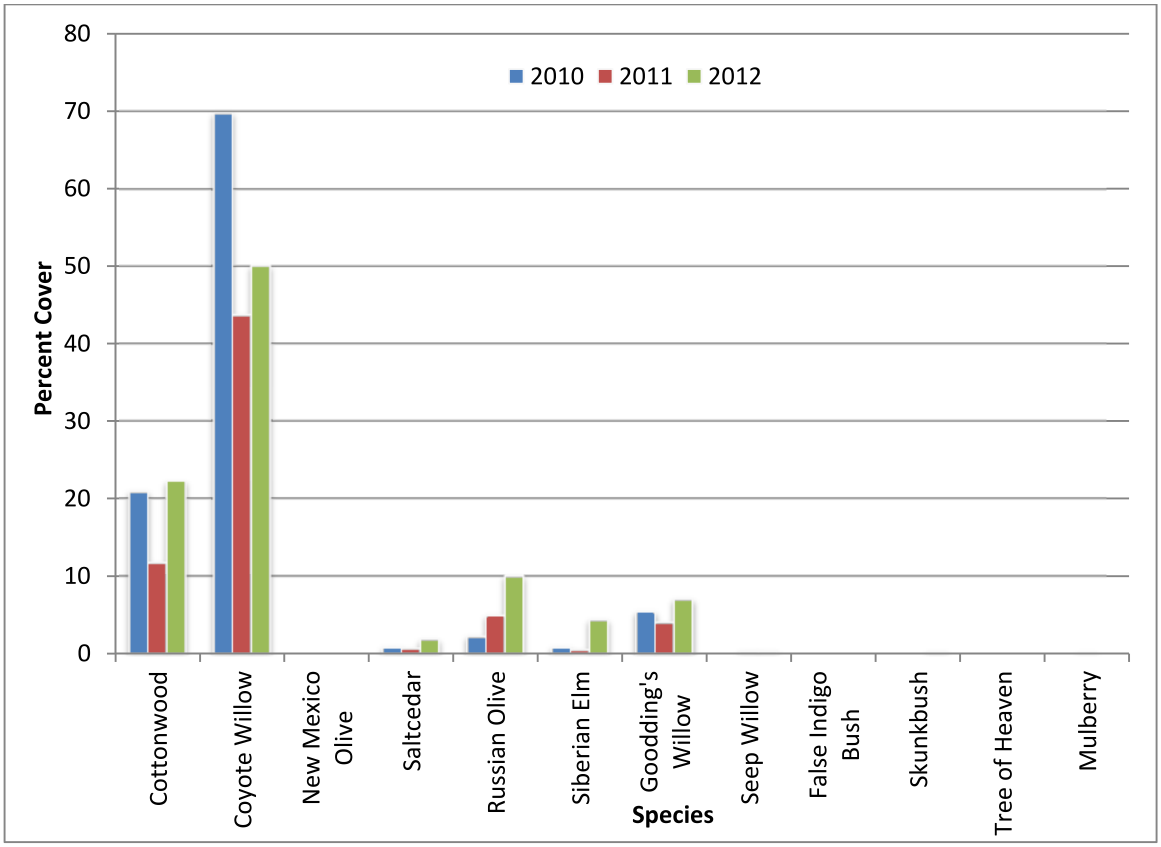
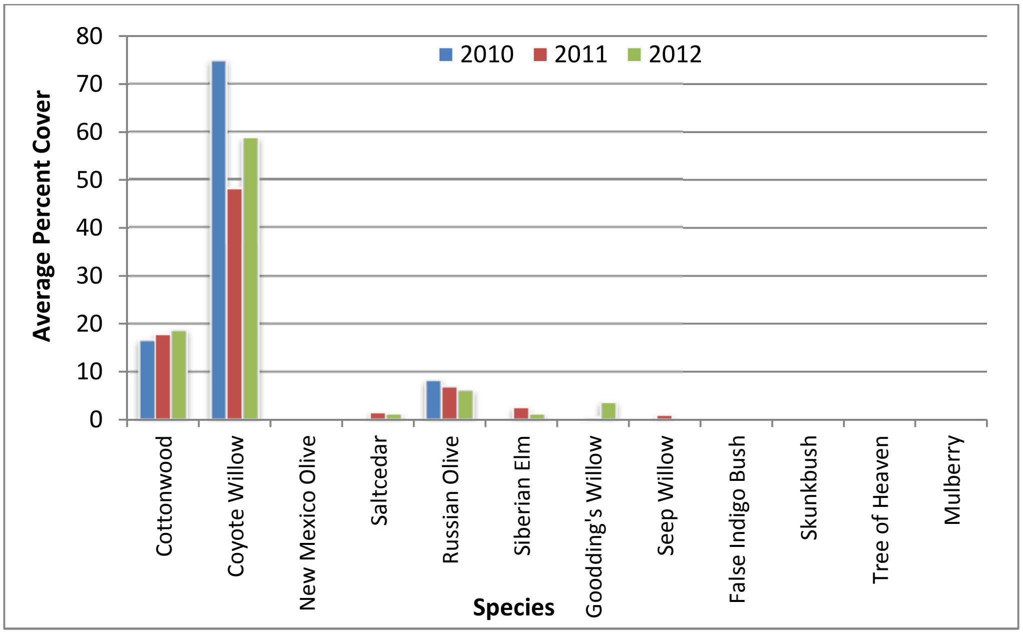
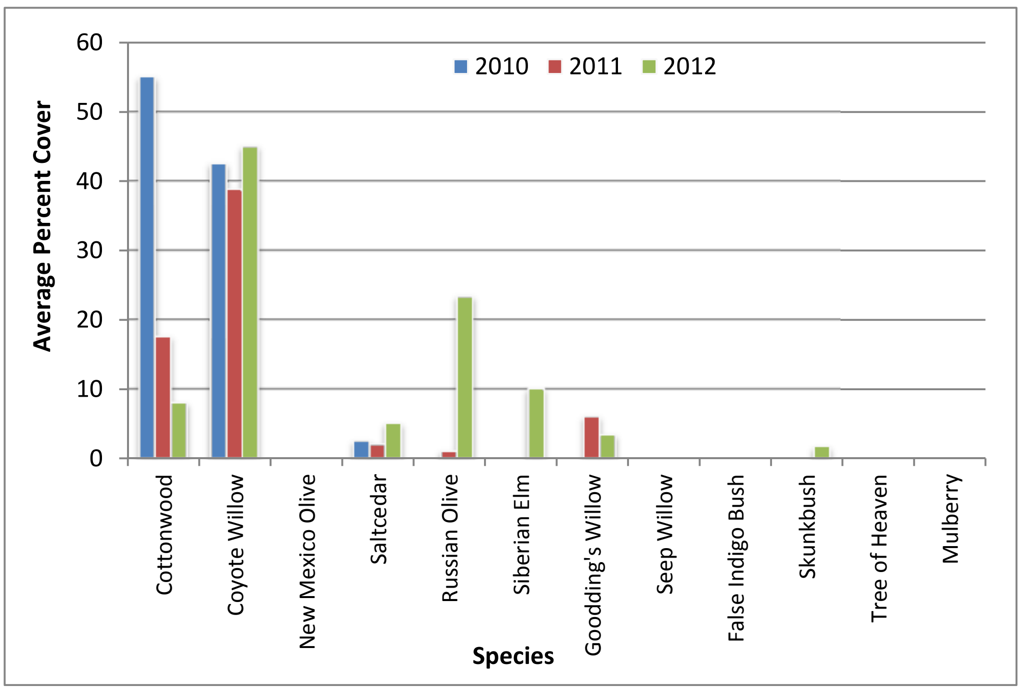


Figure 3.16. Percent canopy cover of each woody plant species averaged over vegetation polygons and each of the six sites with bank destabilization features in 2010, 2011, and 2012.

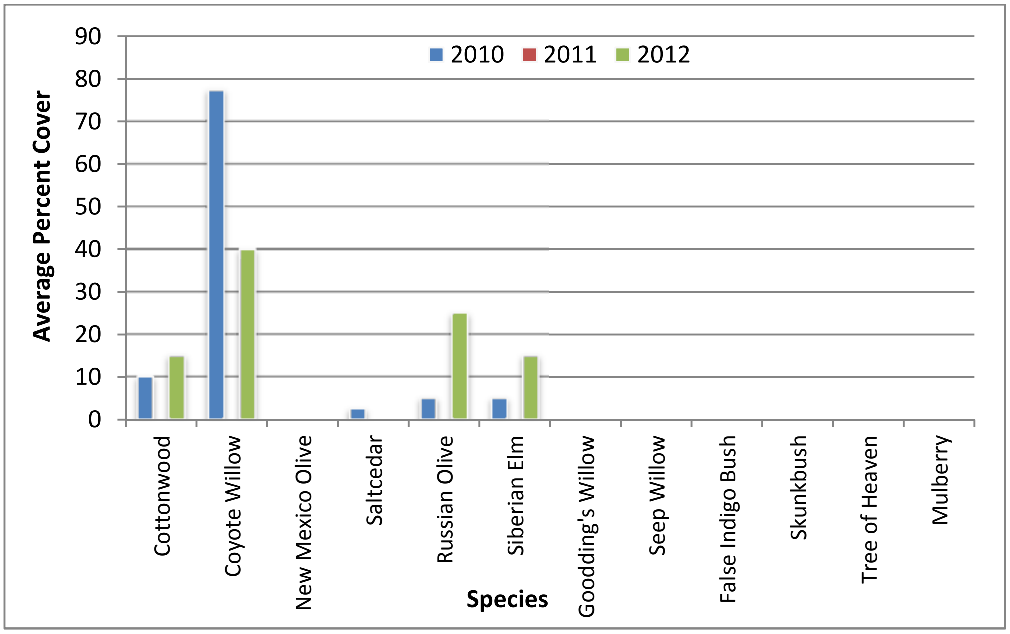
Figure 3.17 shows how the cover of woody plant species varied among each of the bank destabilization features over the 3-year period. Coyote willow cover dominated all of the sites, except COA-1 where cottonwood dominated in 2010, but then coyote willow dominated in 2011 and 2012. At PER-19, cottonwood cover was low in 2010, but increased considerably in 2012 to co-dominate the site with coyote willow. Native Goodding's willow had the greatest canopy cover at the PER-19 site, where it remained stable between 2010 and 2012, despite a great decline in 2011. Exotic saltcedar and Russian olive had relatively low cover at all sites, but did show increases in cover at COA 1. Data were not sufficient for statistical testing.



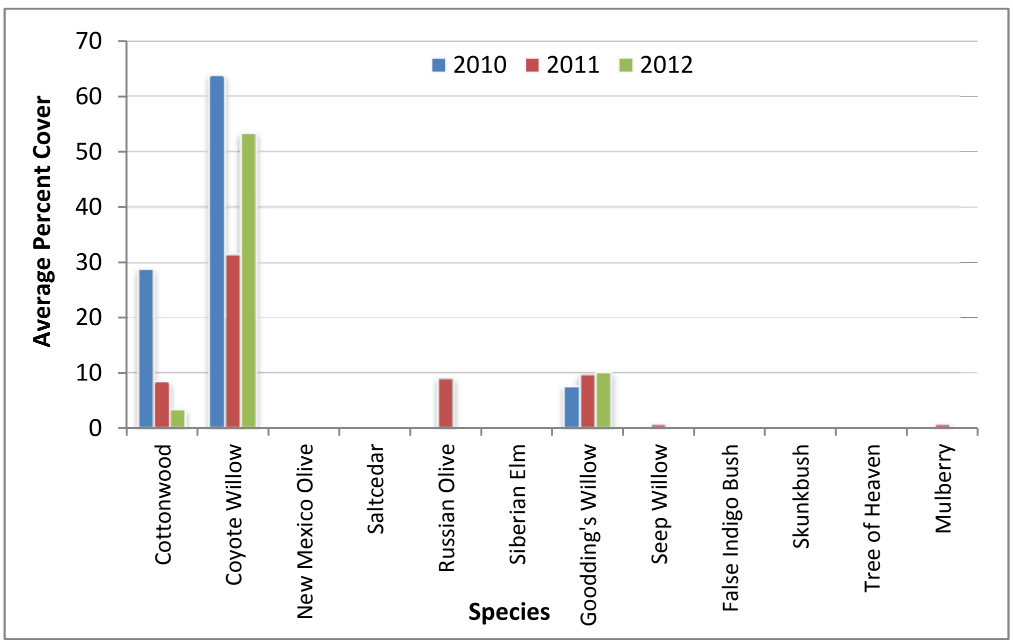
a. I40-4b.



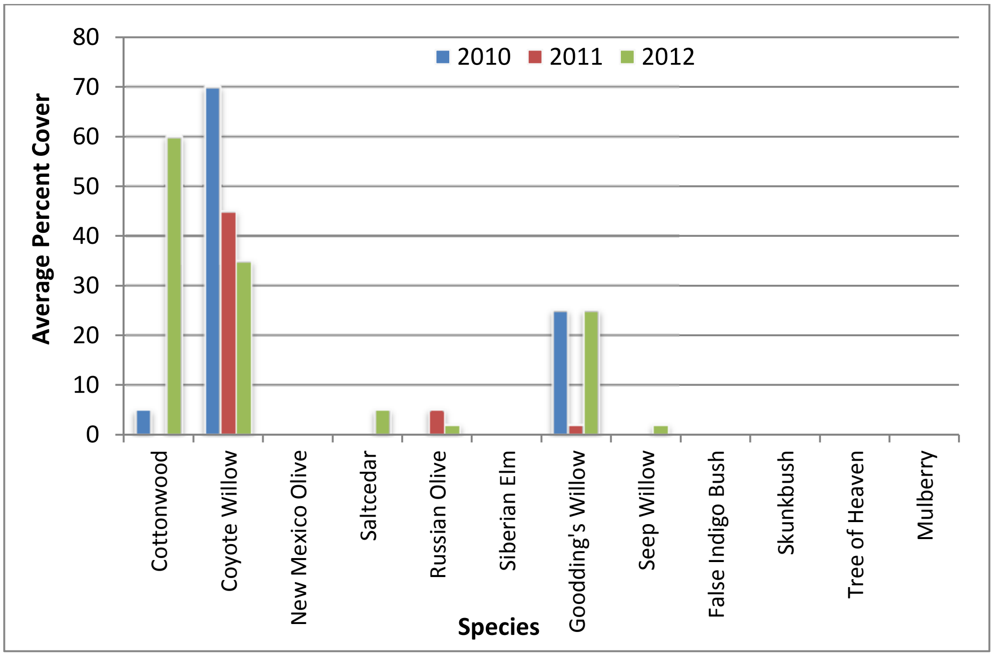
b. COA-1.



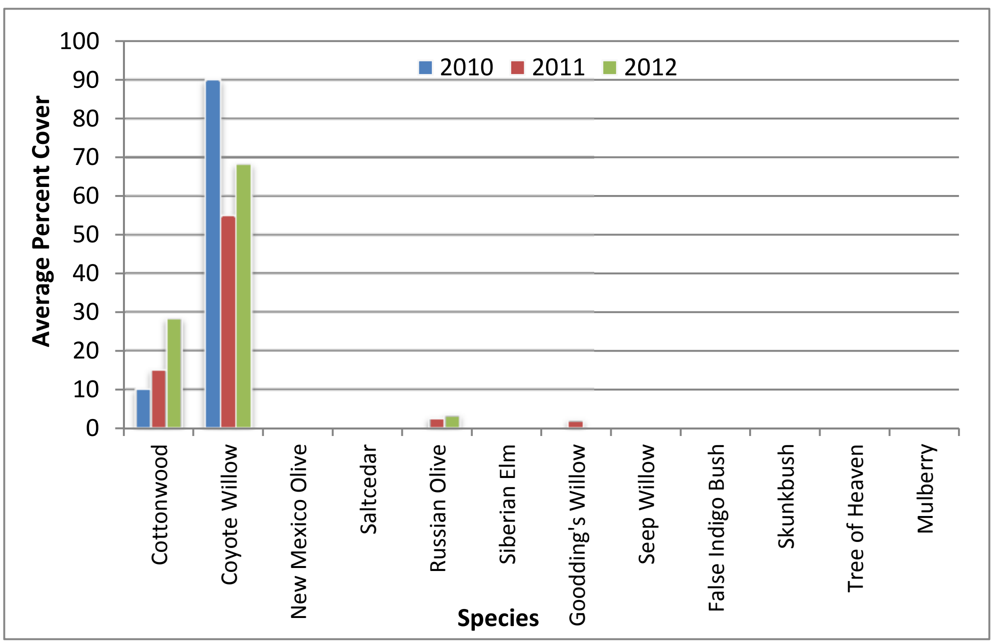
c. SDC-5b.



d. PER-16.



e. PER-19.



f. LP1-1.

Figure 3.17. Percent canopy cover of each woody plant species averaged over vegetation polygons at each of the six sites with bank destabilization features in 2010, 2011, and 2012. a. I40-4b site, b. COA1 site, c. SDC-5b site, d. PER-16 site, e. PER-19 site, f. LP-11 site.

Terrace Features

Change in woody vegetation canopy cover measured at the two terrace features in 2011 and 2012 is shown in Figure 3.18. Native coyote willow dominated terrace features, followed by native cottonwood and exotic Russian olive. All other species had relatively low cover values. All species showed increases in cover from 2011 to 2012. Data were not sufficient for statistical testing.

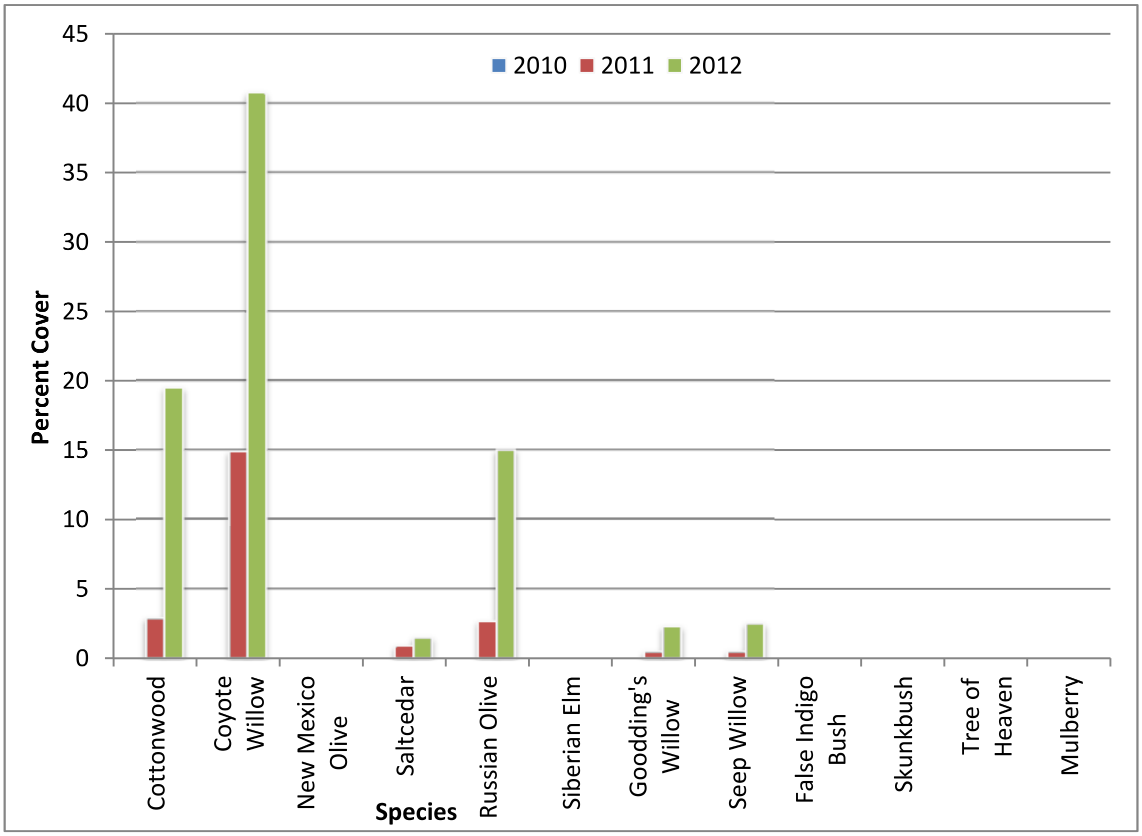
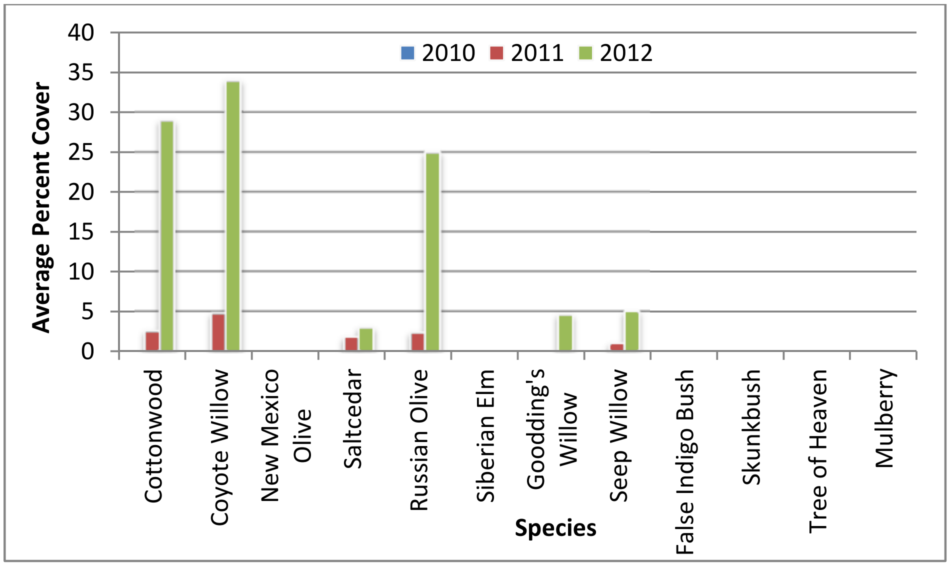
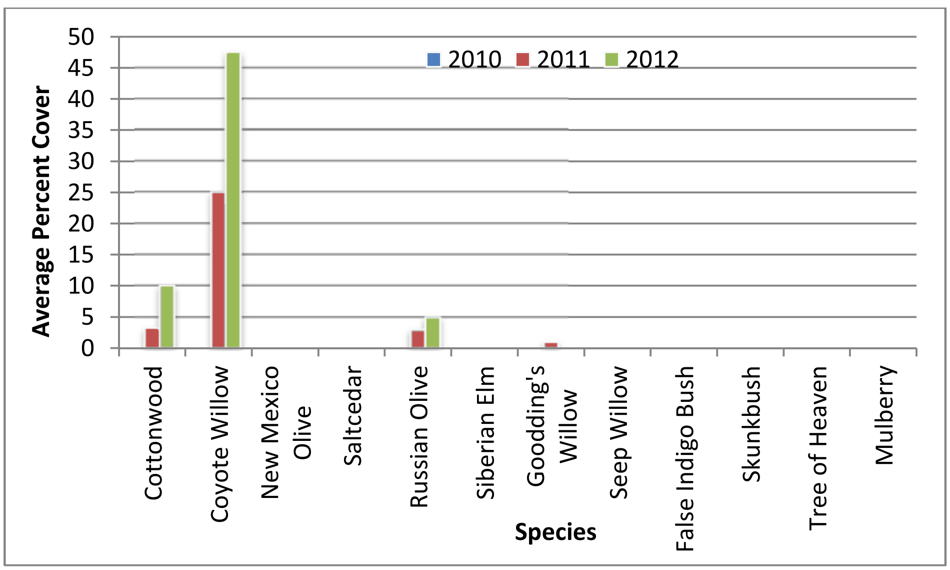


Figure 3.18. Percent canopy cover of each woody plant species averaged over vegetation polygons and each of the two sites with terrace features in 2010, 2011, and 2012.

Figure 3.20 shows how the cover of woody plant species varied among each of the terrace features over the 3-year period. Site SDC-9b/5b showed the greatest increase in coyote willow, cottonwood, and Russian olive. Site SDC-9i showed a large increase in coyote willow only. Data were insufficient for statistical testing.



a. SDC-9b/5b.



b. SDC-9i.

Figure 3.19. Percent canopy cover of each woody plant species averaged over vegetation polygons at each of the two sites with terrace features in 2010, 2011, and 2012. a. SDC-9b/5b, b. SDC-9i.

Island Destabilization Features

Change in woody vegetation canopy cover measured at six island destabilization features is shown in Figure 3.20. Native coyote willow dominated the island destabilization features, but cover declined in 2012. Native cottonwood had low cover in 2010 and 2011, but increased greatly in 2012. Exotic Russian olive and saltcedar both had much lower cover than coyote willow or cottonwood. Russian olive cover decreased slightly in 2011, increased again in 2012, but was still much less than in 2010. Saltcedar cover also decreased in 2011 and then increased in 2012, but was greater than in 2010. All other species had very low cover over the 3-year period. A Wilcoxon rank sum test results revealed that only the increase in cottonwood was statistically significant.

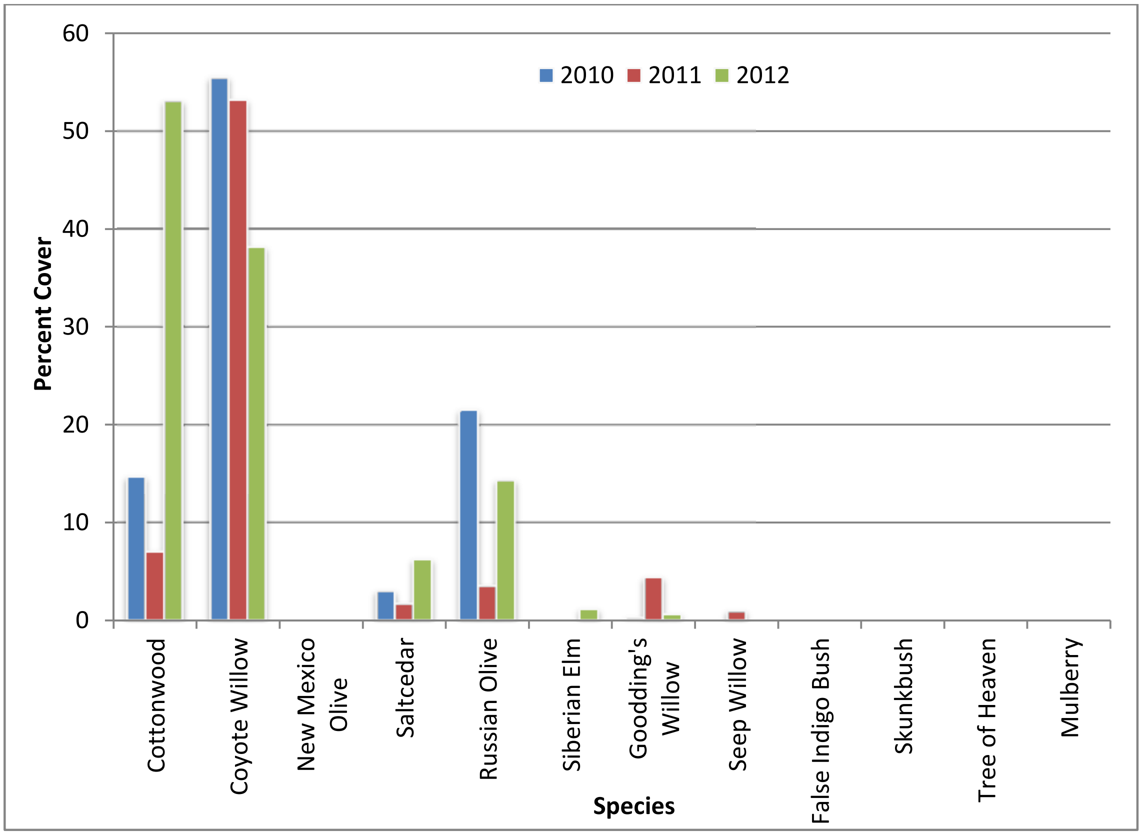
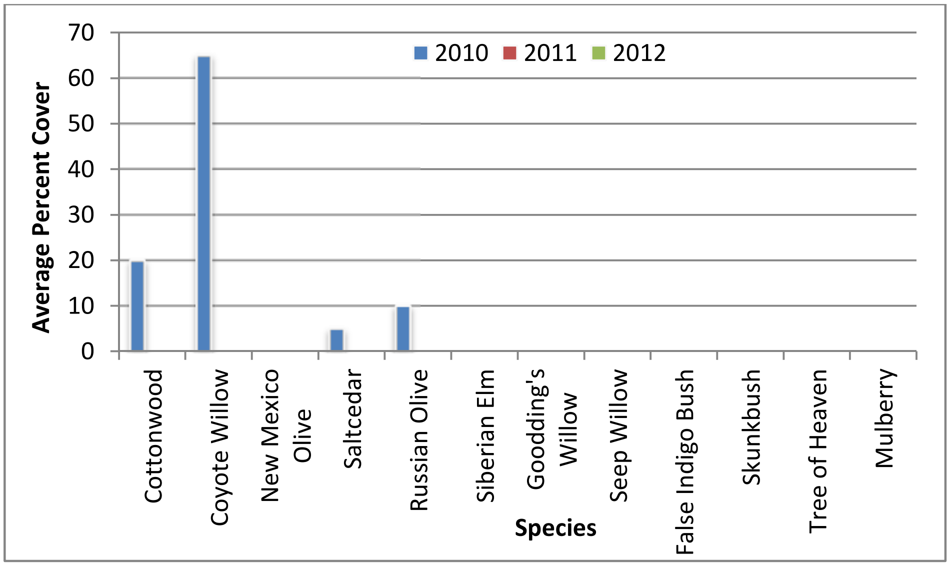
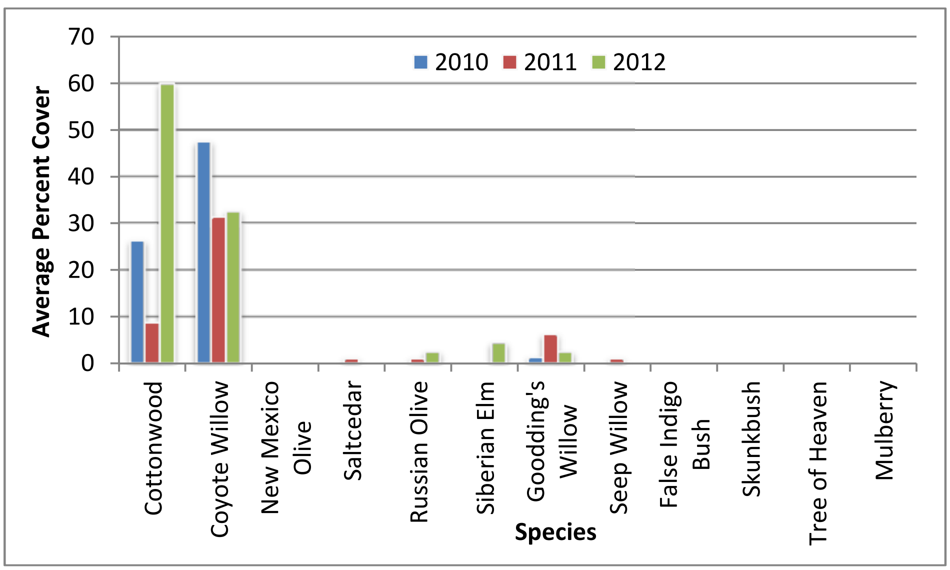


Figure 3.20. Percent canopy cover of each woody plant species averaged over vegetation polygons and each of the six sites with island destabilization features in 2010, 2011, and 2012.

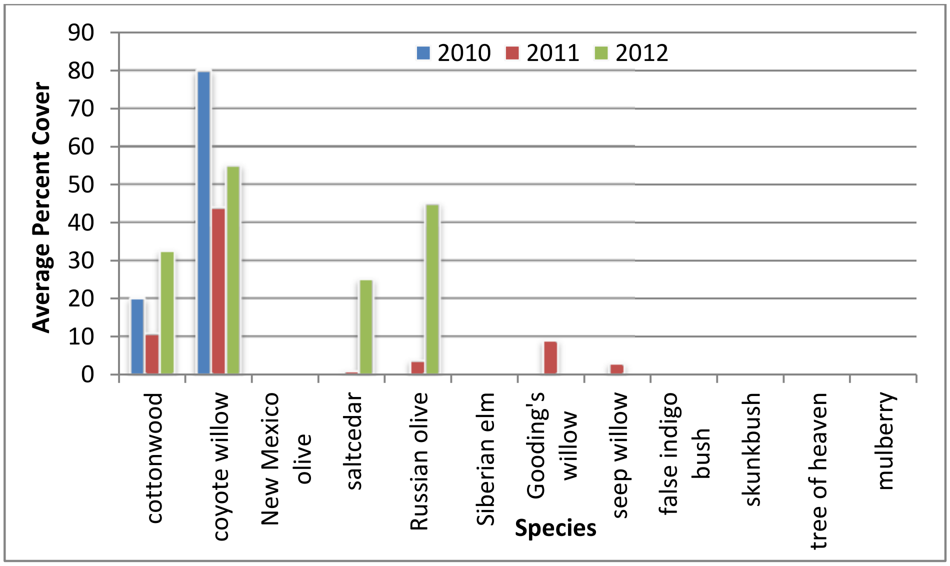
Figure 3.21 shows how the cover of woody plant species varied among each of the island destabilization features over the 3-year period. Coyote willow dominated the cover of island destabilization features PDN-7i and PDN-13i, but was absent or not measured at those features in 2011 and 2012. Coyote willow had co-dominant cover with cottonwood and features PDN-9i and PDN-11i, and coyote willow declined in cover at both of those features over the 3-year period. Coyote willow was absent or not measured in 2010 at the SDC-1i and I-40-2i features, and then increased at the SDC-1i site in 2011 and 2012, but was absent or not measured at the I-40-2i feature in 2010 and 2012. Cottonwood had cover values around 20% in 2010 at the PDN-7i, PDN-9i, and PDN-11i sites, and increased at all but the PDN-7i site where it was not measured or absent in 2012. Cottonwood cover increased greatly from close to 0% cover in 2011 to 100% cover in 2012 at the I-40-2i feature. Russian olive declined considerably over the 3-year period at the SDC-1i feature and increased considerably over the 3-year period at the PDN-11i feature. Data were insufficient for statistical testing.



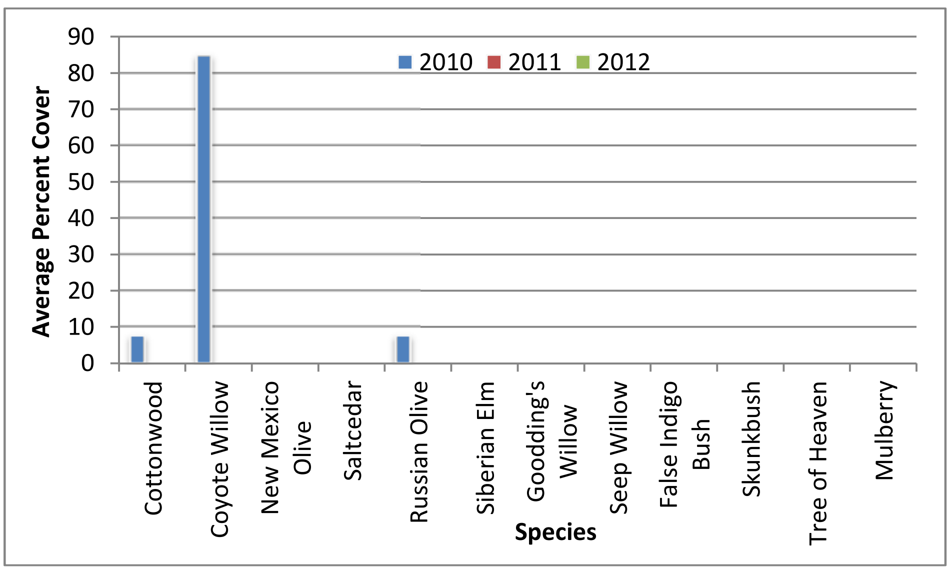
a. PDN-7i.



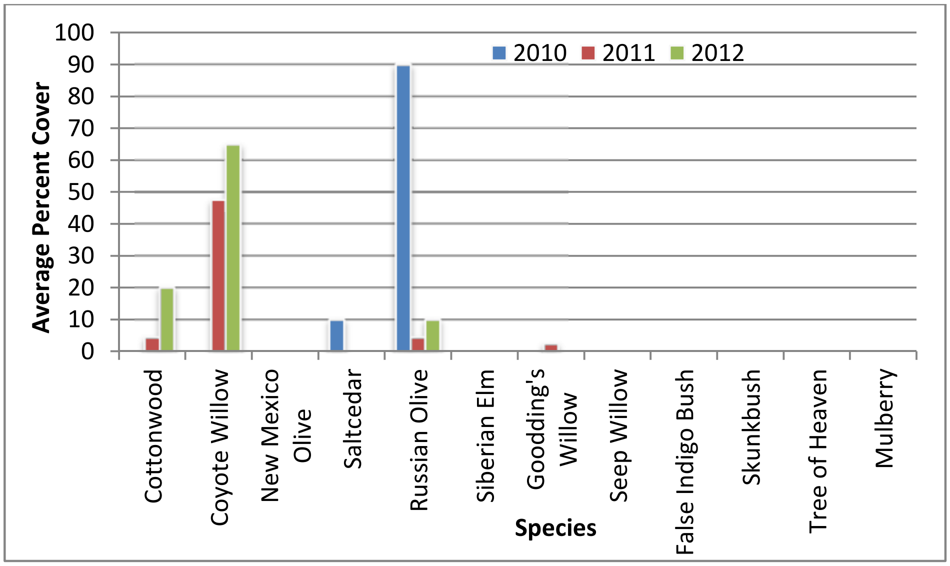
b. PDN-9i.



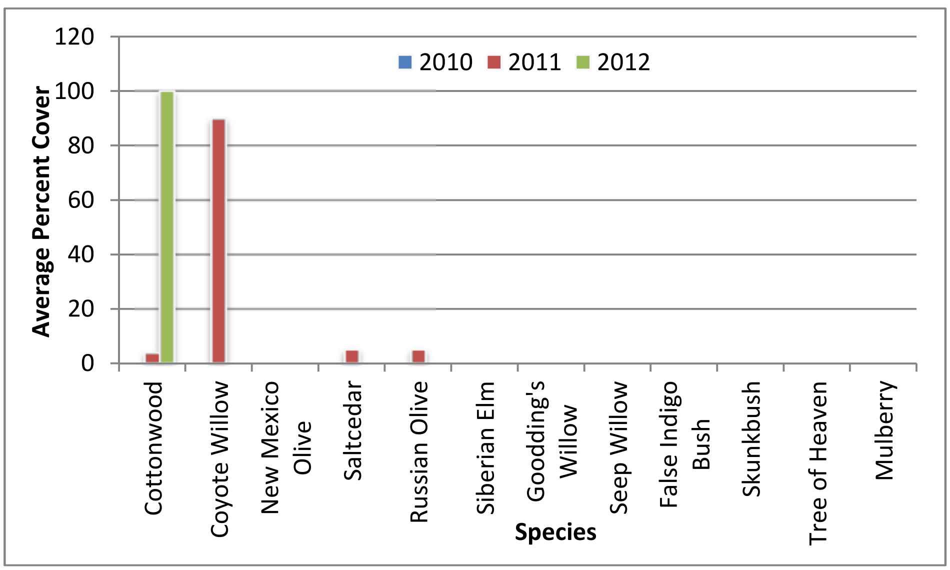
c. PDN-11i.



d. PDN-13i.



e. SDC-1i.



f. I-40-2i.

Figure 3.21. Percent canopy cover of each woody plant species averaged over vegetation polygons at each of the six sites with island destabilization features in 2010, 2011, and 2012. a. PDN-7i, b. PDN-9i, c. PDN-11i, d. PDN-13i, e. SDC-1i, f. I-40-2i.

High-Flow Channel Features

Change in woody vegetation canopy cover measured at six high-flow channel features over the 3-year period is presented in Figure 3.22. Native coyote willow and cottonwood dominated the cover over all high-flow features, and the cover of both declined from 2010 to 2011, but then increased again in 2012, but not to 2010 levels, showing an overall decline in cover. All other species had relatively very low cover values over the 3-year period. Wilcoxon test results revealed that none of the trends were statistically significant.

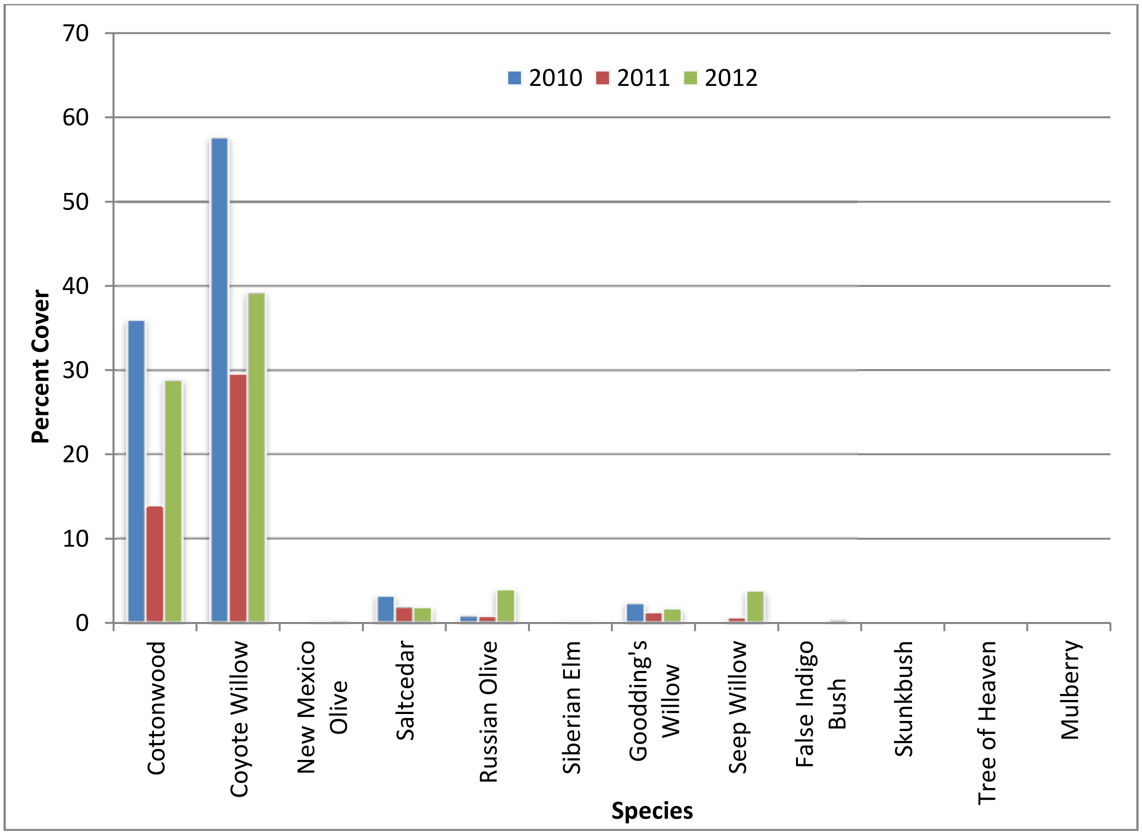
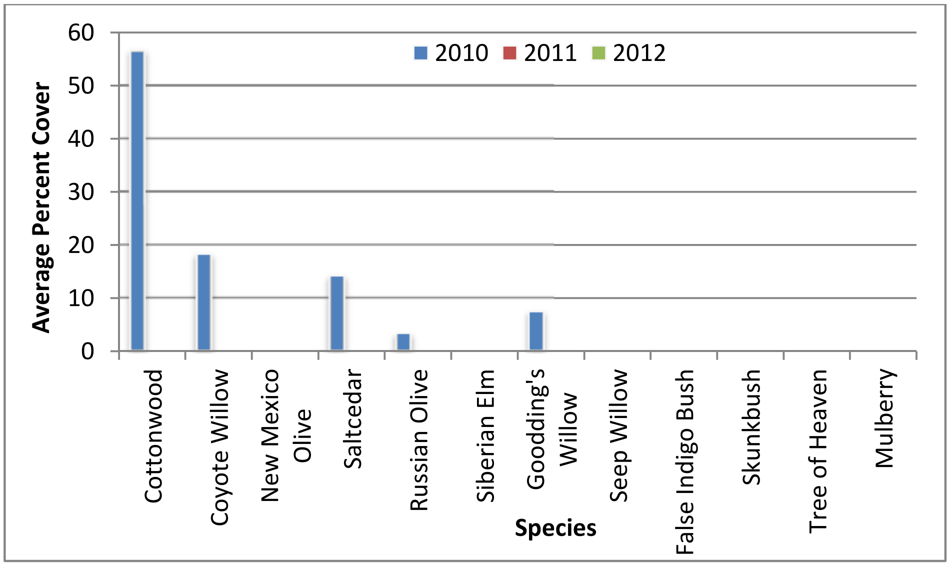
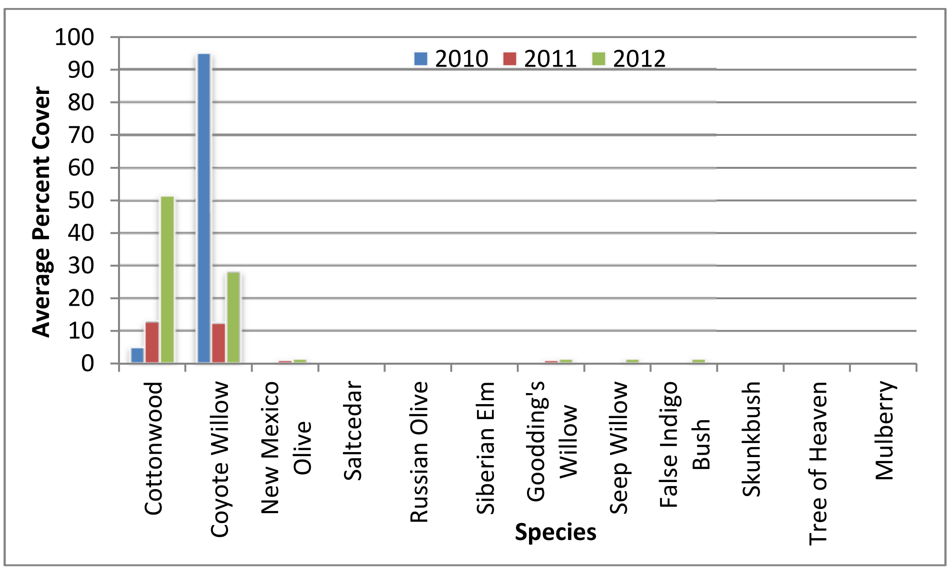


Figure 3.22. Percent canopy cover of each woody plant species averaged over vegetation polygons and each of the six sites with high-flow channel features in 2010, 2011, and 2012.

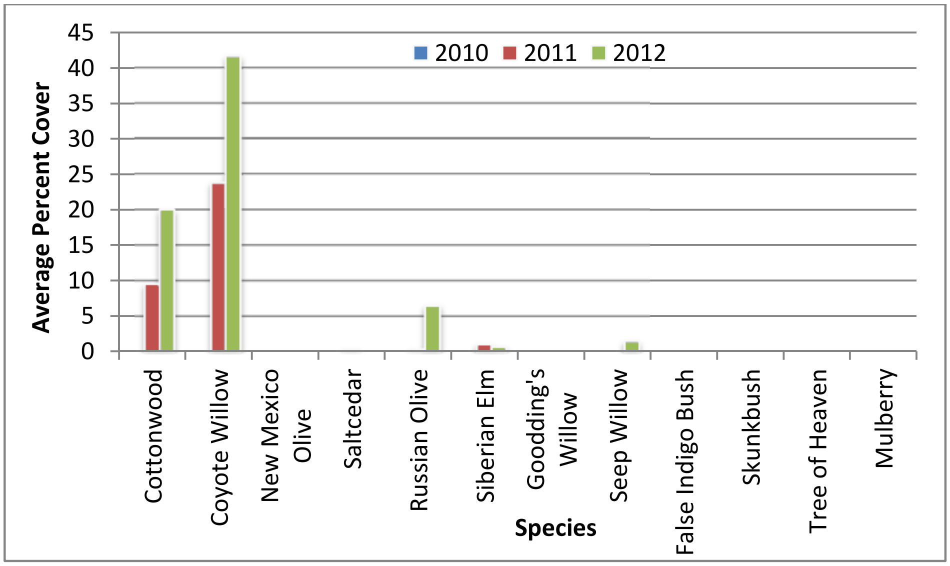
Figure 3.23 shows how the cover of woody plant species varied among each of the six high-flow channel features over the 3-year period. Coyote willow had the greatest cover at all six high-flow features except for the Los Lunas and LP1-3 features where cottonwood cover was higher. Coyote willow cover declined at all high-flow channel features except at I-40-2b where it increased between 2011 and 2012. Over the 3-year period, cottonwood cover increased at the NDC-1, I-40-2b, and LP1-3 features, but declined at the COA2 and RGNC features. Data were insufficient for statistical testing.



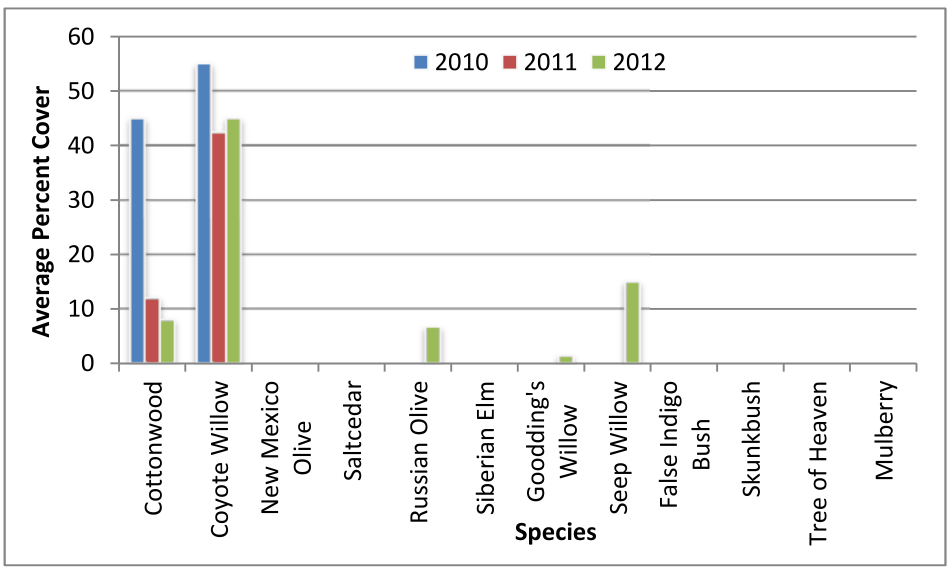
a. Los Lunas.



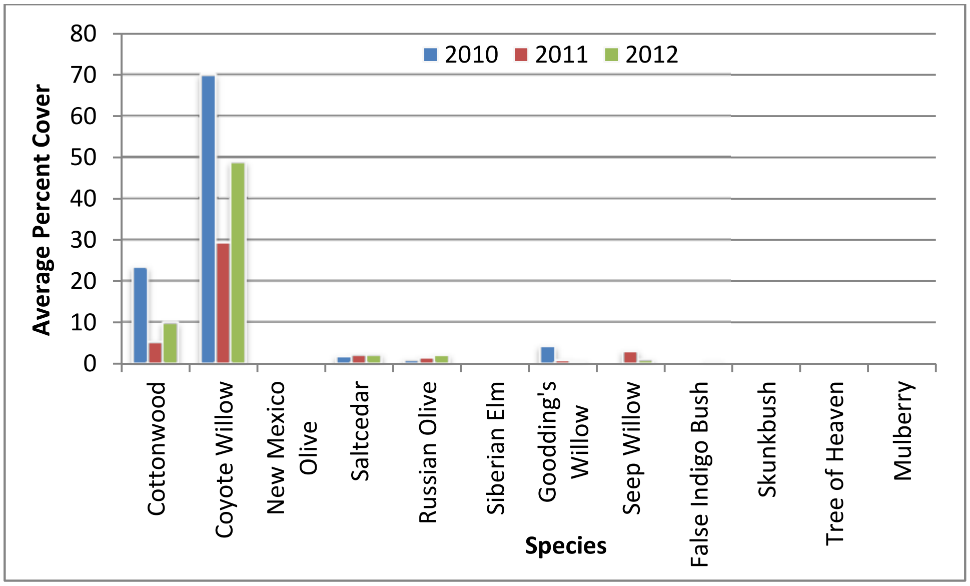
b. NDC-1ch.



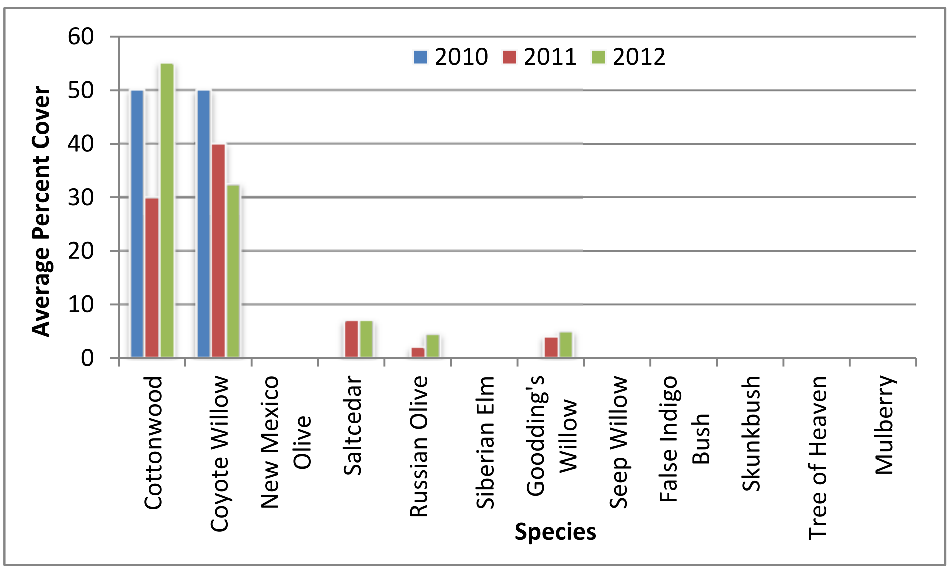
c. I-40-2b.



d. COA2.



e. RGNC.



f. LP1-3.

Figure 3.23. Percent canopy cover of each woody plant species averaged over vegetation polygons at each of the two sites with channel features in 2010, 2011, and 2012. a. Los Lunas, b. NDC-1ch, c. I-40-2b, d. COA2, e. RGNC, f. LP1-3.

Combination Features

Change in woody vegetation canopy cover measured at sites with a combination of features is presented in Figure 3.24 and Figure 3.25. Data were available only for 2011. Canopy cover at both sites was dominated by coyote willow, followed by cottonwood, saltcedar, and Goodding's willow. All cover values were below 30% at both sites. Data were insufficient for statistical testing.

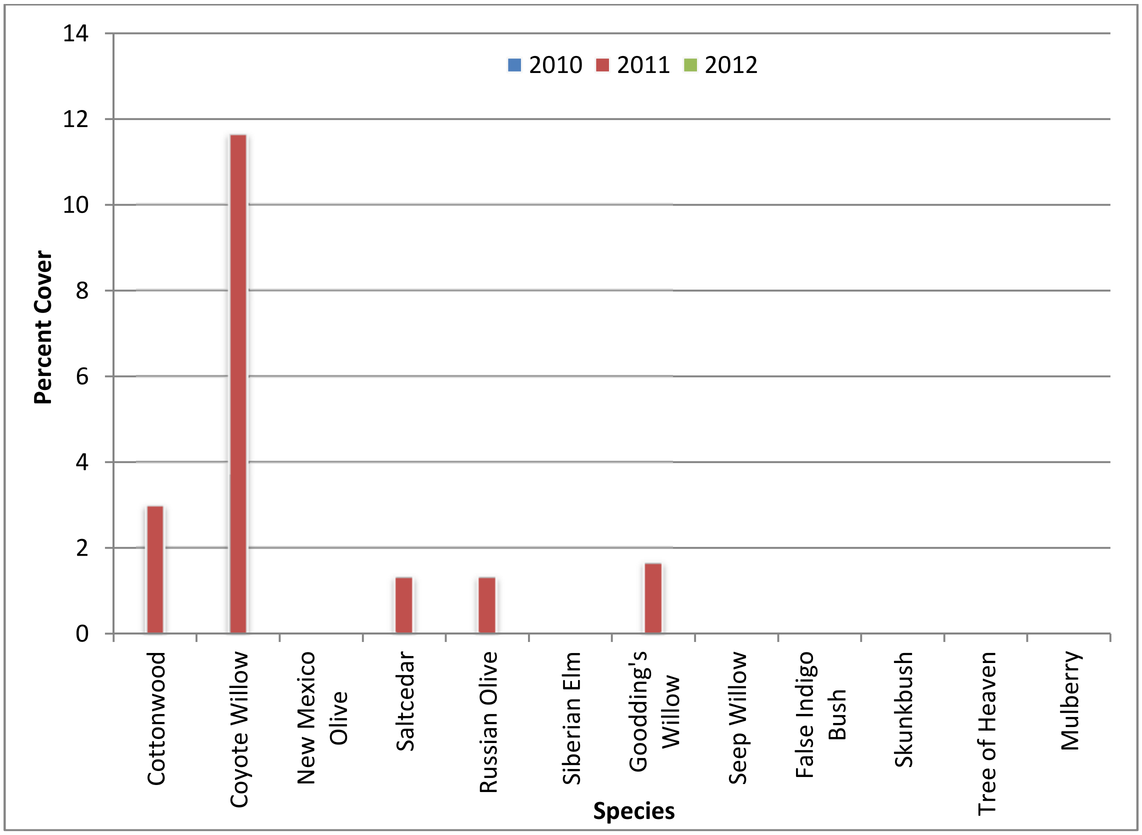


Figure 3.24. Percent canopy cover of each woody plant species averaged over vegetation polygons at the STR4-BC1 site with bankline bench and backwater features in 2010, 2011, and 2012.

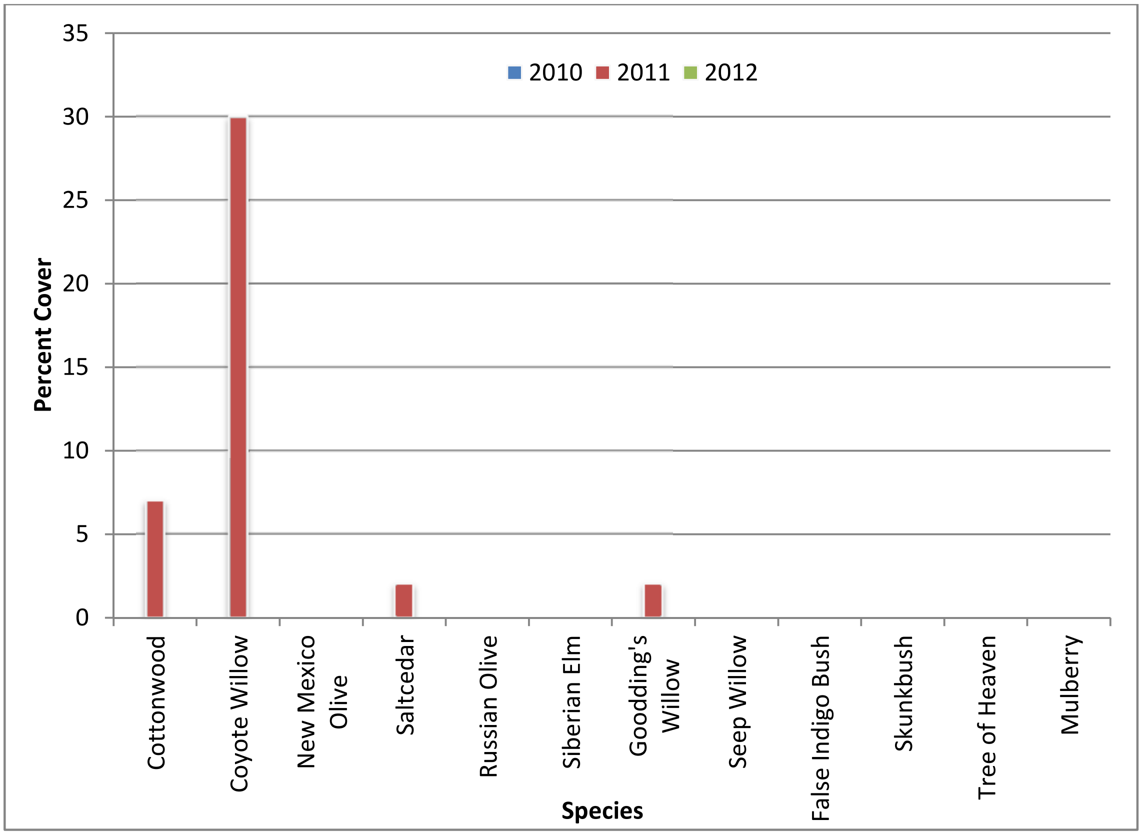


Figure 3.25. Percent canopy cover of each woody plant species averaged over vegetation polygons at the Bel-5-BC2 site with bankline bench/ephemeral channel/bankline terrace/ backwater features in 2010, 2011, and 2012.

Summary of Statistical Tests for Differences in Woody Vegetation Cover among Species over Years by Feature Types

Non-parametric statistical testing for differences in cover of woody vegetation species by feature type could only be performed for bank and island destabilization features and high-flow channel features that were represented by more than two sites. Table 3.5 presents a summary of Wilcoxon test results for those data. The only statistically significant trends were for a decrease in coyote willow cover among bank destabilization features from 2010 to 2012, and an increase in cottonwood cover among island destabilization features from 2010 to 2012. All other tests were insignificant at the alpha 0.05 level.

Table 3.5. Wilcoxon Test Results for Differences in Canopy Cover of Woody Plant Species for Each Pair-wise Combination of Years 2010, 2011 and 2012 by Habitat Restoration Features

Feature	Species	2010/2011 Trend, Significance (*p* value)	2011/2012 Trend, Significance	2010/2012 Trend, Significance
Bank destabilization	Coyote willow	**Decrease, 0.03**	None, 0.24	**Decrease, 0.03**
	Cottonwood	None, 0.33	None, 0.24	None, 0.50
	Goodding's willow	None, 0.16	None, 0.46	None, 0.25
	New Mexico olive	None, 0.50	None, 0.50	None, 0.50
	Saltcedar	None, 0.46	None, 0.35	None, 0.27
	Russian olive	None, 0.08	None, 0.46	None, 0.08
	Siberian elm	None, 0.50	None, 0.18	None, 0.14
Island destabilization	Coyote willow	None, 0.41	None, 0.44	None, 0.21
	Cottonwood	None, 0.21	**Increase, 0.03**	**Increase, 0.04**
	Goodding's willow	None, 0.60	None, 0.10	None, 0.43
	New Mexico olive	None, 0.45	None, 0.50	None, 0.50
	Saltcedar	None, 0.45	None, 0.28	None, 0.50
	Russian olive	None, 0.36	None, 0.44	None, 0.50
	Siberian elm	None, 0.50	None, 0.24	None, 0.20
High-flow channel	Coyote willow	None, 0.06	None, 0.12	None, 0.07
	Cottonwood	None, 0.12	None, 0.42	None, 0.42
	Goodding's willow	None, 0.50	None, 0.27	None, 0.38
	New Mexico olive	None, 0.22	None, 0.50	None, 0.22
	Saltcedar	None, 0.41	None, 0.46	None, 0.50
	Russian olive	None, 0.41	None, 0.07	None, 0.07
	Siberian elm	None, 0.22	None, 0.50	None, 0.22

Bank and island destabilization features and high-flow channel features were represented at six sites. Backwater, embayment, terrace, and combination features were represented by less than three sites, so statistical testing could not be performed for those features. Trends are increasing, decreasing or none for changes in cover between each pair or years, significance is p value from each Wilcoxon test, given an alpha level of 0.05. Significant differences are indicated by bold text.

3.3 WOODY VEGETATION HEIGHT CLASSES

3.3.1 Woody Vegetation Height Classes by Species and Sites

This section of this report presents findings on the patterns of height classes of the woody plant species measured across the different sites and features, with a focus on spatial and temporal patterns of each plant species. Data were not appropriate for statistical testing; only graphs are shown.

Change in height class of native coyote willow across all sites and feature type over the 3 years is presented in Figure 3.26. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Bank destabilization features tended to have the greatest height classes of coyote willow and did not change much over the 3-year period, ranging from class 2 to 3. Height classes were variable across island destabilization features, generally around 2 but ranging from 1 to 4 with no clear trends over time. The single backwater feature was represented by height class 3 and the embayment feature changed from height class 1 to 2 over the 3 years. High-flow channel features tended to be represented by height class 2, and combination feature sites ranged from 1 to 2.

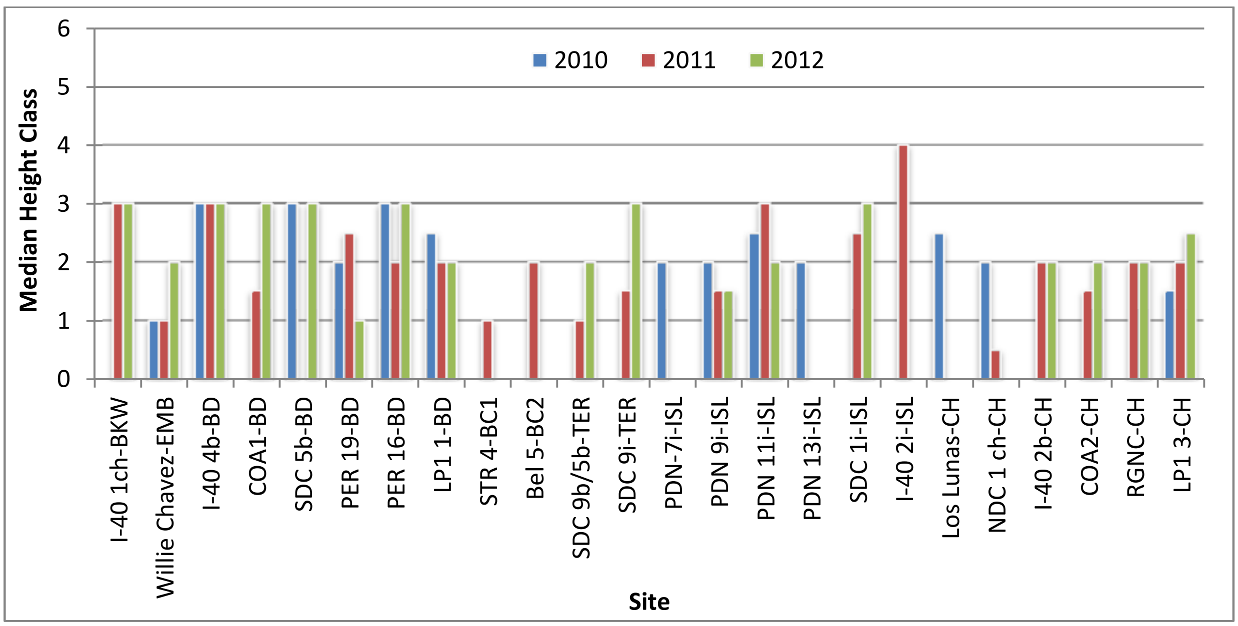


Figure 3.26. Coyote willow median height classes over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in height class of native cottonwood across all sites and feature type over the 3 years is presented in Figure 3.27. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Bank and island destabilization features tended to have the largest height classes of cottonwood, ranging from class 2 to 4, and generally showed trends of increasing height classes over time. High-flow channels, terrace, backwater, and embayment features generally had cottonwood trees with a height class of 1 to 2, with an increase in height class over time.

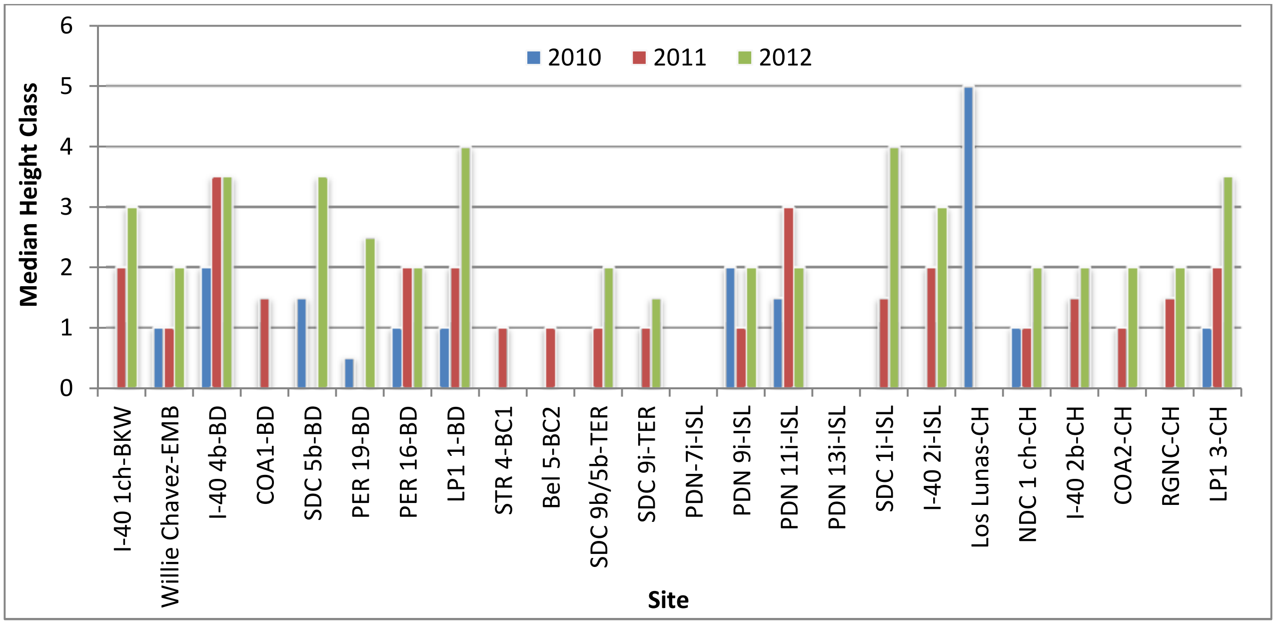


Figure 3.27. Cottonwood median height classes over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in height class of native Goodding's willow across all sites and feature types over the 3 years is presented in Figure 3.28. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Goodding's willow tended to be represented by relatively large height classes across all feature types, but few sites and features were represented by data each of the 3 years. In most cases where 2 years of data were present, Goodding's willow increased in height class over time. Data were insufficient to detect height class trends in Goodding's willow by feature over time.

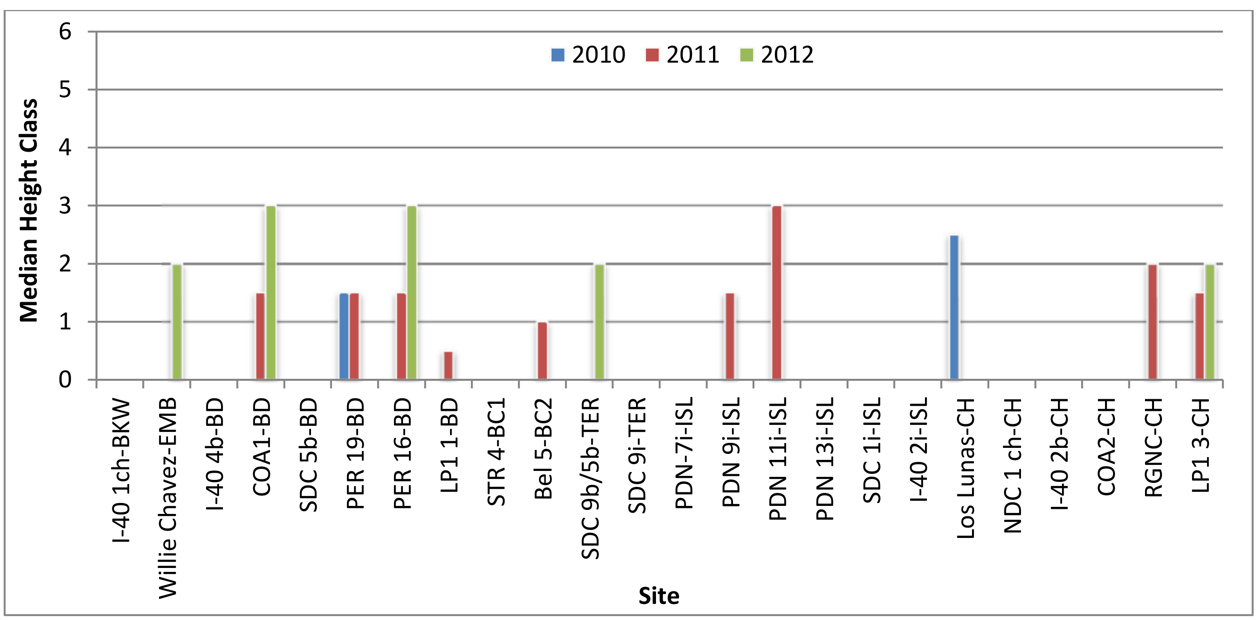


Figure 3.28. Goodding's willow median height classes over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in height class of exotic saltcedar across all sites and feature type over the 3 years is presented in Figure 3.29. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Saltcedar height classes were highly variable across features and over years. At two of the three features that had 2 years of data, one bank destabilization and the other a high-flow channel, saltcedar did increase in height class between 2011 and 2012. Otherwise, data were insufficient to determine height class changes in saltcedar over time relative to feature type.

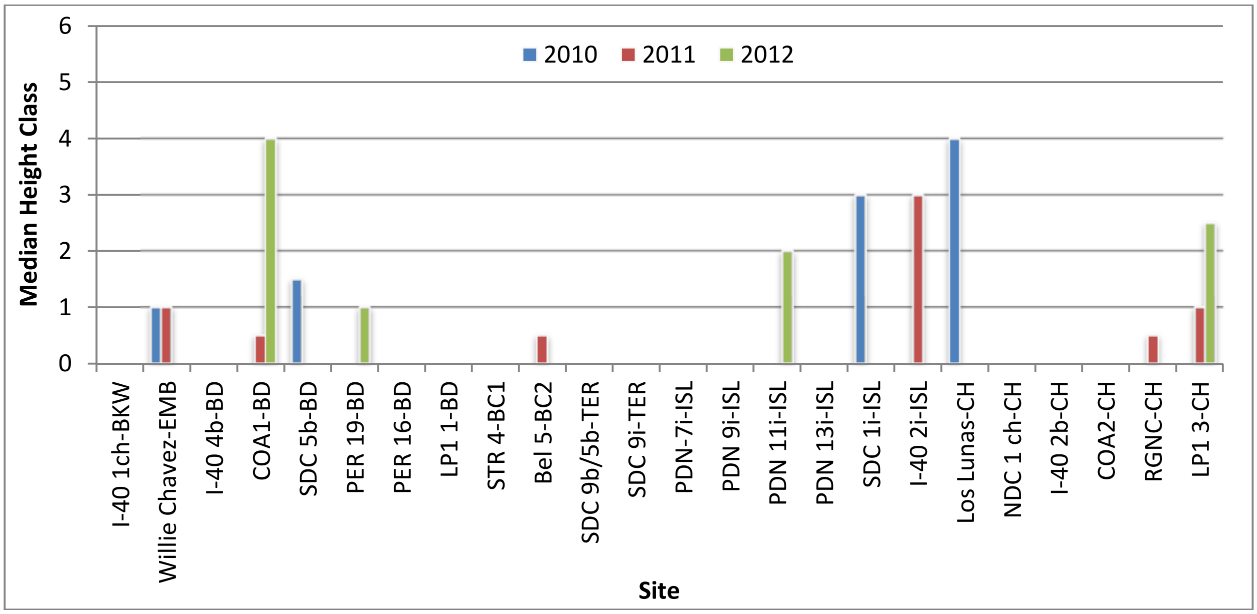


Figure 3.29. Saltcedar median height classes over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in height classes of exotic Russian olive across all sites and feature types over the 3 years is presented in Figure 3.30. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Russian olive height classes were greatest across bank and island destabilization features, generally ranging from class 1 to 5, mostly around class 3 and 4. Russian olive height classes tended to increase over time, especially among half of the high-flow channel features and both of the terrace features. Russian olive height class increased and decreased across bank and island destabilization features.

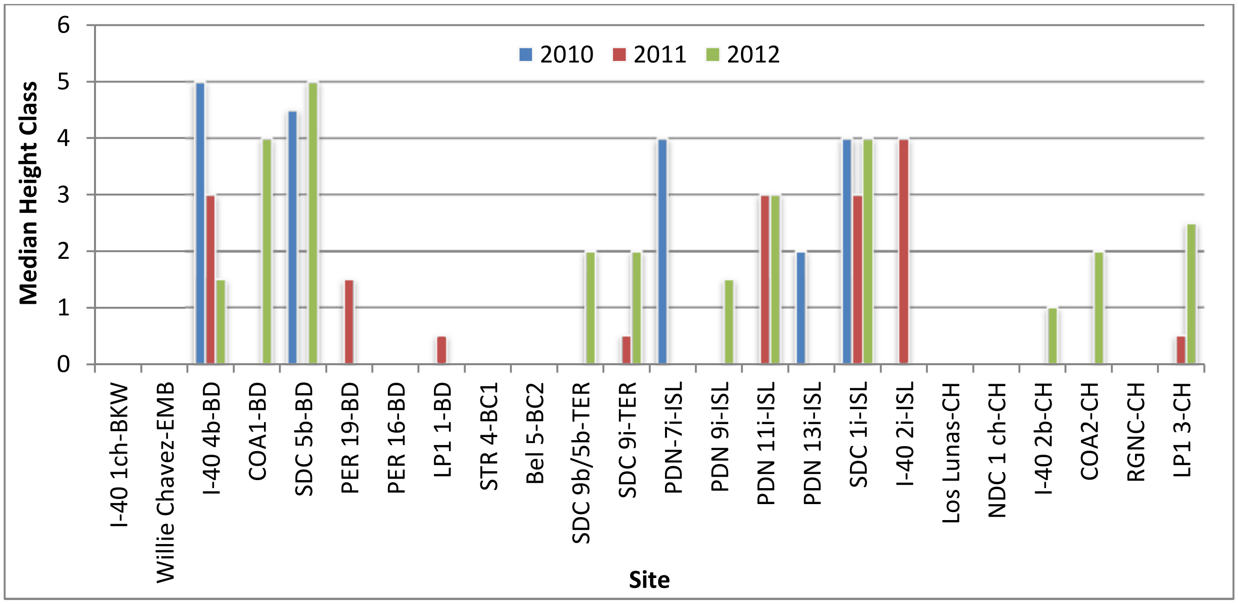


Figure 3.30. Russian olive median height classes over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

Change in height class of exotic Siberian elm across all sites and feature type over the 3 years is presented in Figure 3.31. Sites where no values exist for certain years do not necessarily represent zero values. In some cases the site or species were not measured some years. Siberian elm occurred at few sites and features, but did increase considerably at two of the bank destabilization and one island destabilization feature.

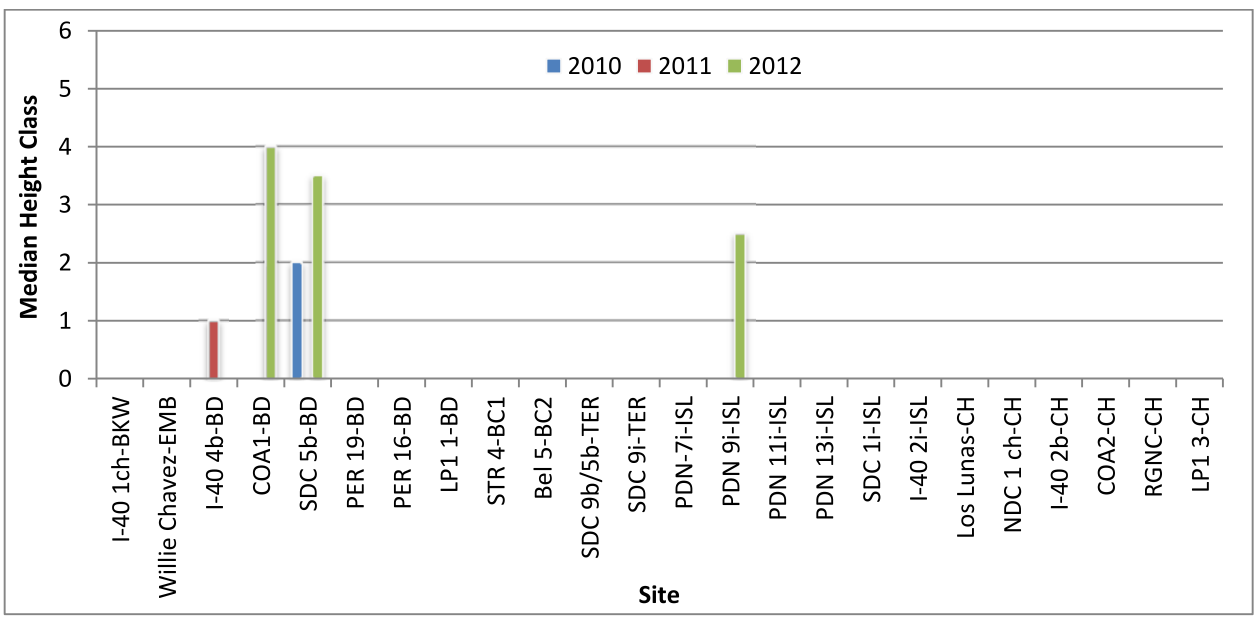


Figure 3.31. Siberian elm median height classes over all vegetation polygons at each of the 24 sites in 2010, 2011, and 2012.

3.3.2 Woody Vegetation Height Classes by Species and HR Feature Type

This section presents findings on the patterns of height classes of the woody plant species measured across the different sites and features, with a focus on patterns among each of the sites and features.

Features

Change in woody vegetation height classes measured at the I-40 backwater feature over the 3-year period is presented in Figure 3.32. Cottonwood increased in height classes while coyote willow remained the same.

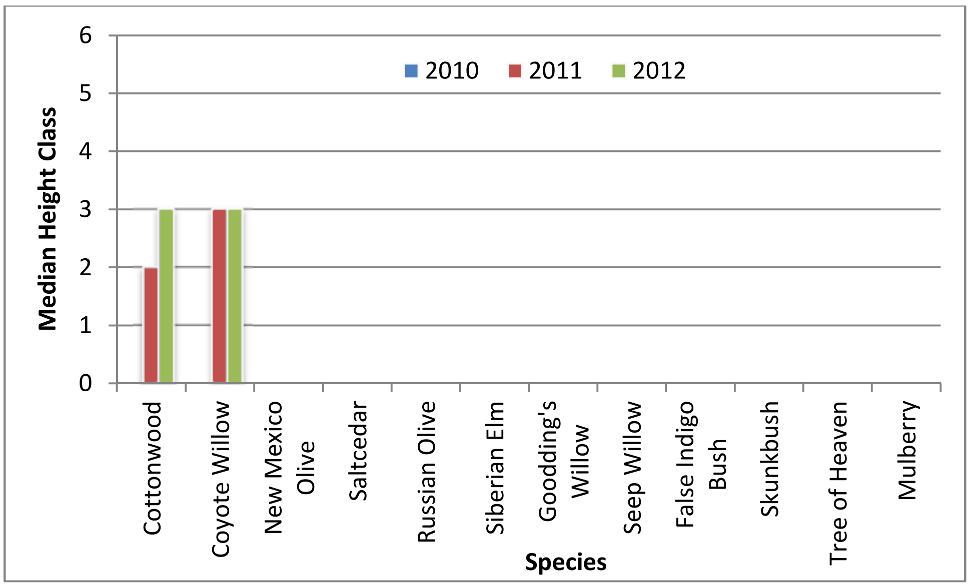


Figure 3.32. Median height classes of each woody plant species over the I-40-1ch backwater feature vegetation polygons in 2010, 2011, and 2012.

Embayment Features

Change in woody vegetation height classes measured at the Willie Chavez embayment feature is presented in Figure 3.33. Cottonwood, coyote willow, and Goodding's willow all increased in from a median height class of 1 to height class 2 over the 3-year period, while saltcedar remained at height class 1 in 2010 and 2011, and apparently declined in 2012.

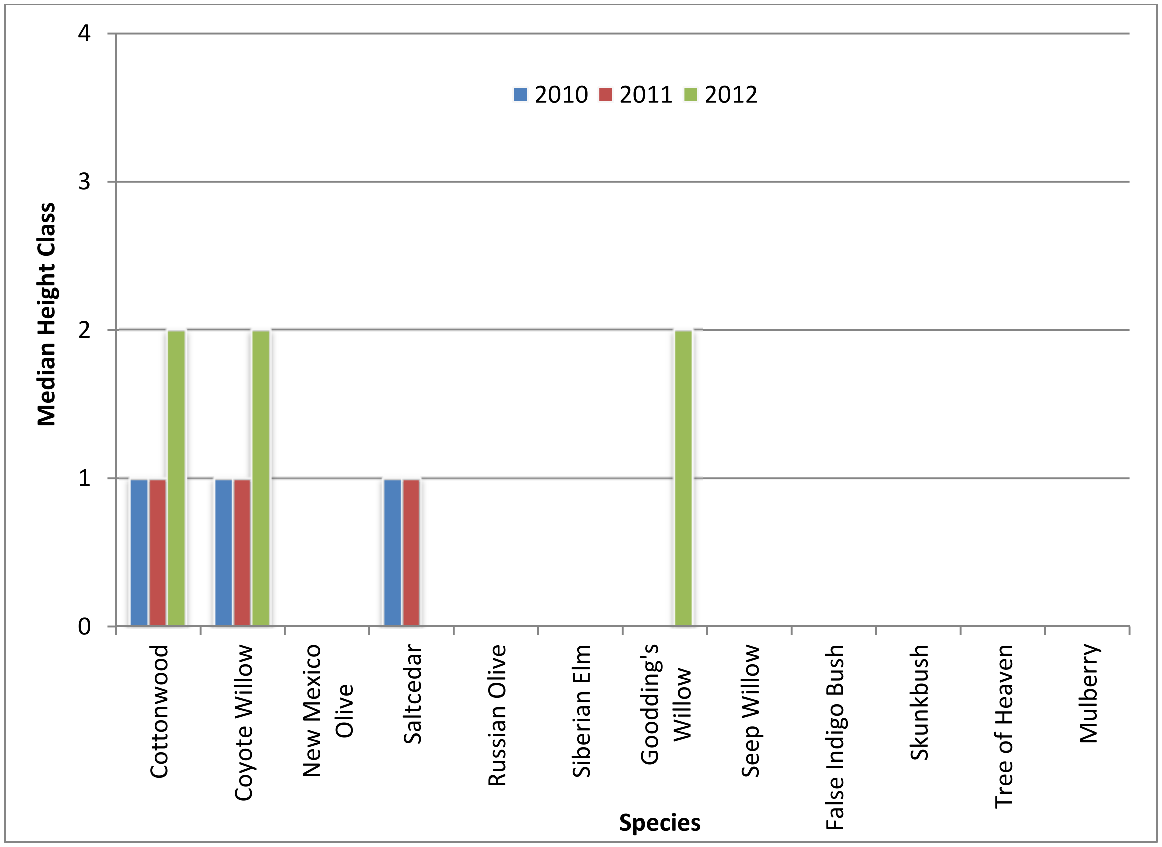


Figure 3.33. Median height classes of each woody plant species over the Willie Chavez embayment feature vegetation polygons in 2010, 2011, and 2012.

Bank Destabilization Features

Change in woody vegetation height classes measured across the six bank destabilization features are presented in Figure 3.34. Cottonwood increased continuously from height class 1 over the 3-year period, coyote willow and Russian olive remained the same, and Goodding's willow was at a height class of 2 in 2011, but not represented in 2010 or 2012.

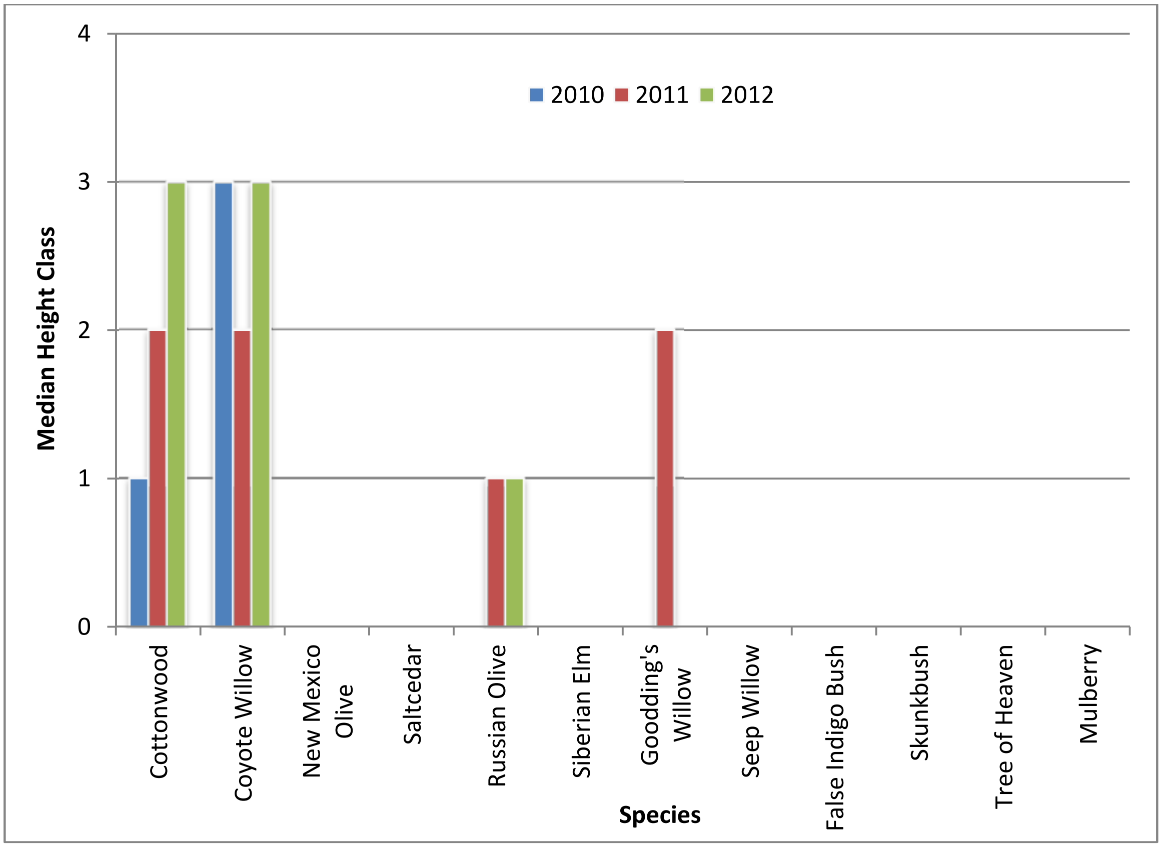
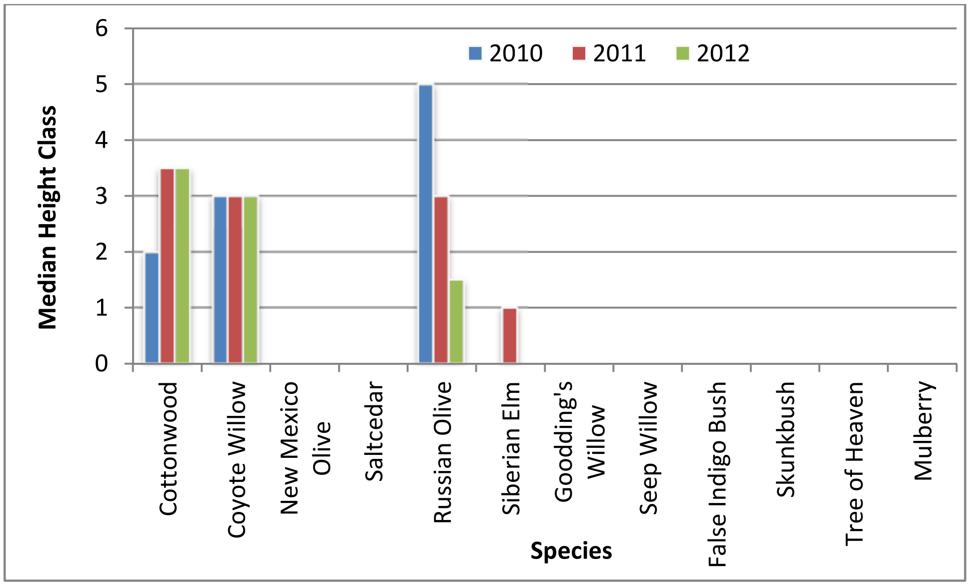
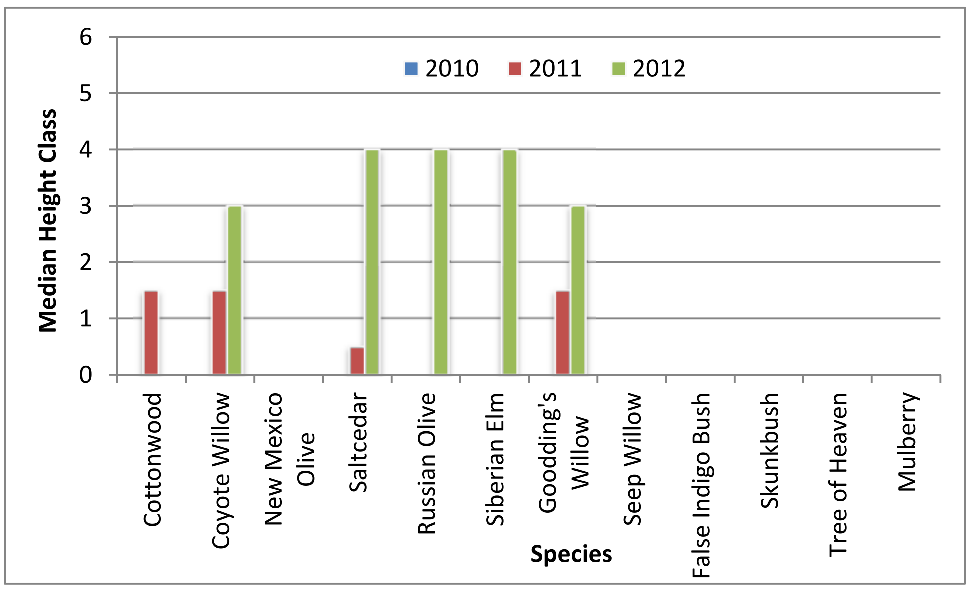


Figure 3.34. Median height classes of each woody plant species over vegetation polygons and each of the six sites with bank destabilization features in 2010, 2011, and 2012.

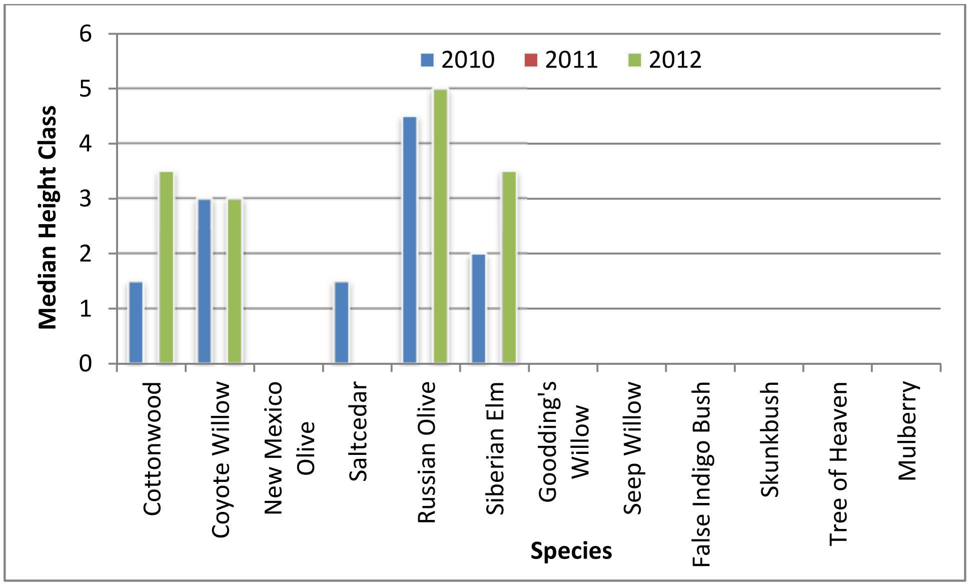
Figure 3.35 shows how the height classes of woody plant species varied among each of the six high-flow channel features over the 3-year period. Cottonwood height classes increased at five of the bank destabilization features over the 3-year period. Coyote willow height classes increased at one of the six destabilization features, remained the same at three of the bank destabilization features, and declined at two over the 3-year period. Russian olive increased in height classes at one of the bank destabilization features and decreased in height at two bank destabilization features. Goodding's willow increased in height classes at two of the features and remained the same at one. Siberian elm increased in height classes at two of the bank destabilization features and decreased at one. Saltcedar height classes increased at two of the features and decreased at one.



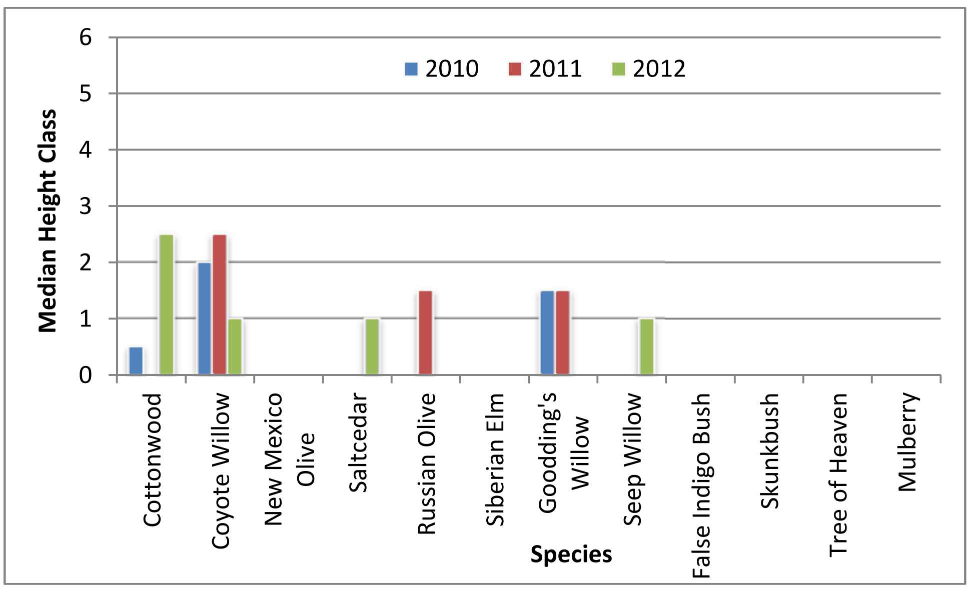
a. I-40-4b.



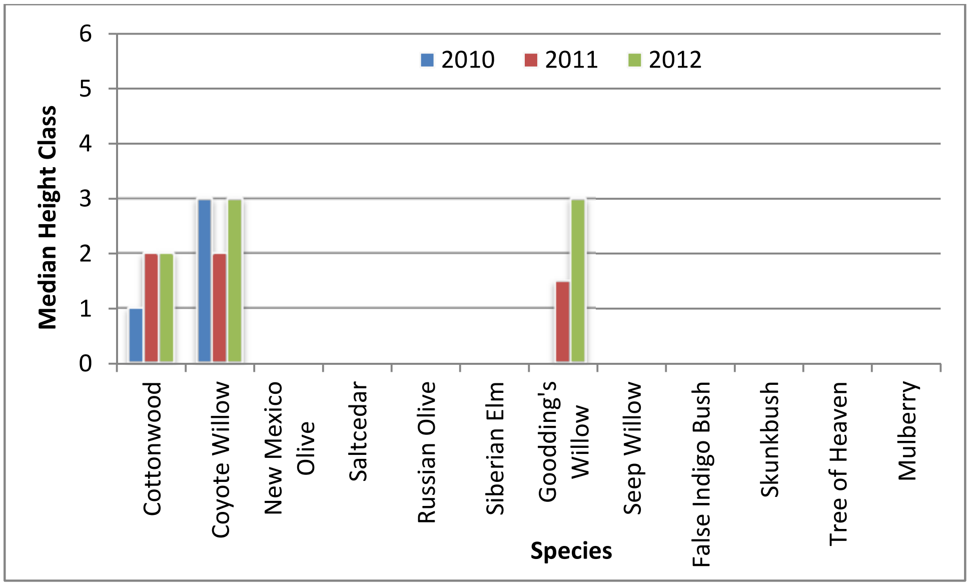
b. COA-1.



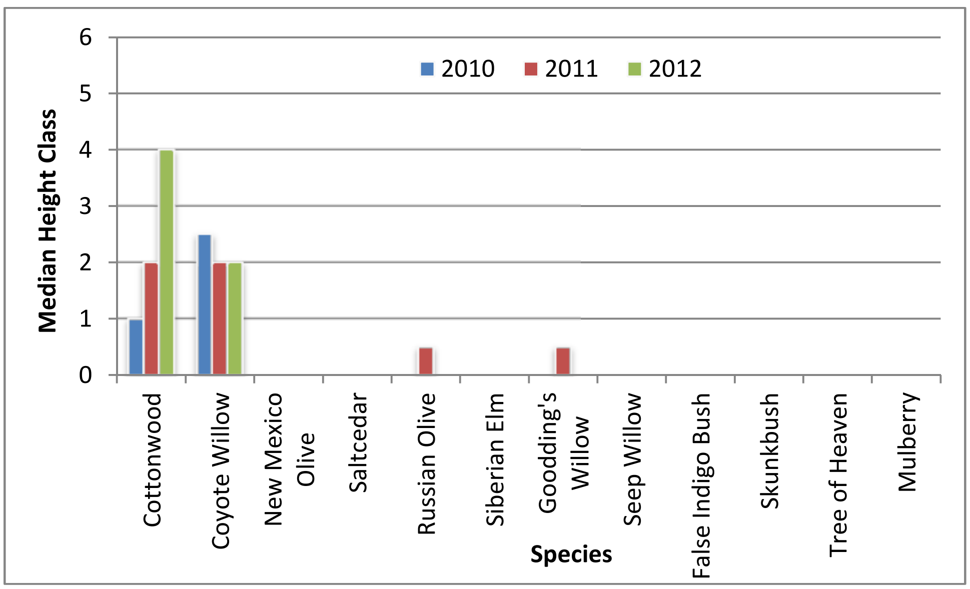
c. SDC-5b.



d. PER-19.



e. PER-16.



f. LP1-1.

Figure 3.35. Median height classes of each woody plant species over vegetation polygons at each of the six sites with bank destabilization features in 2010, 2011, and 2012. a. I40-4b, b. COA-1, c. SDC-5b, d. PER-16, e. PER-19, f. LP1-1.

Terrace Features

Change in woody vegetation height classes measured at the two terrace features are presented in Figure 3.36. Cottonwood, coyote willow, Russian olive, and Goodding's willow all increased in height class across the two terrace features over the 3-year period.

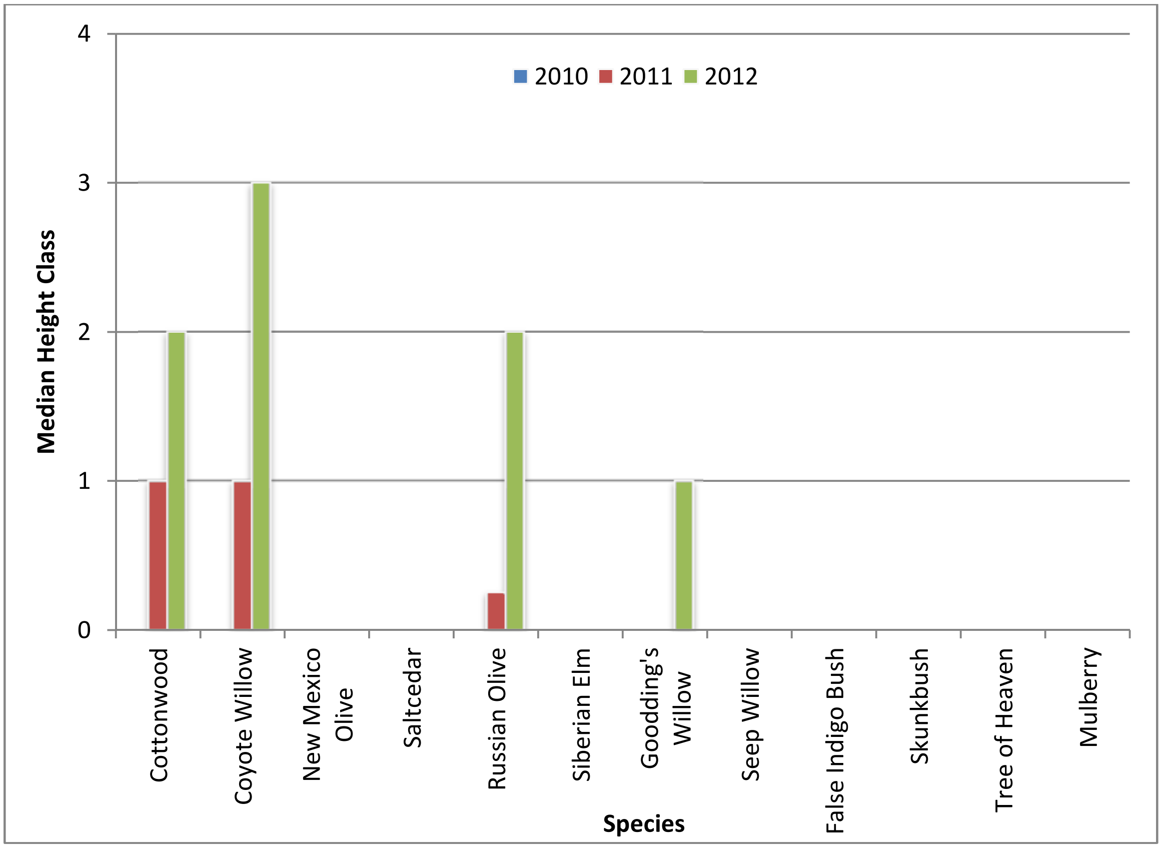
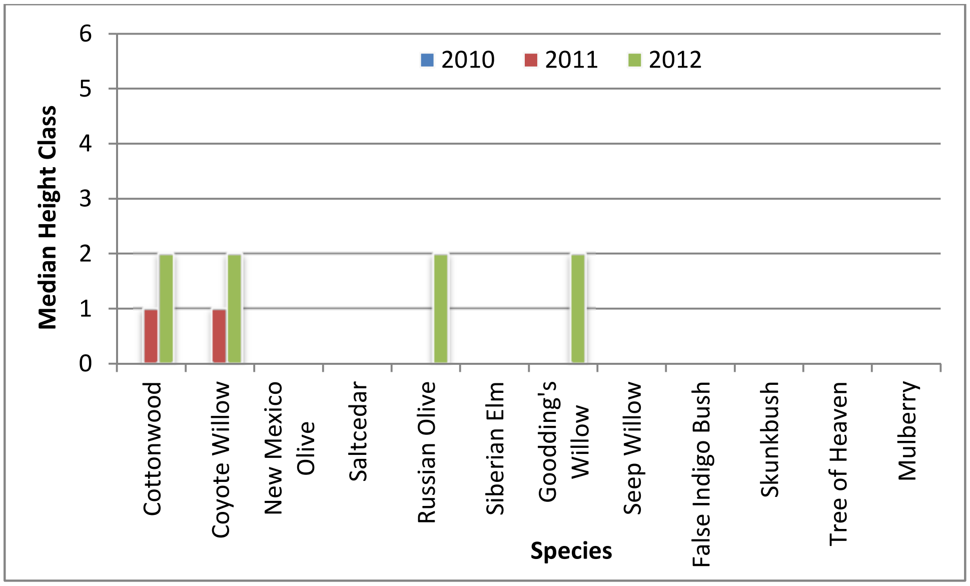
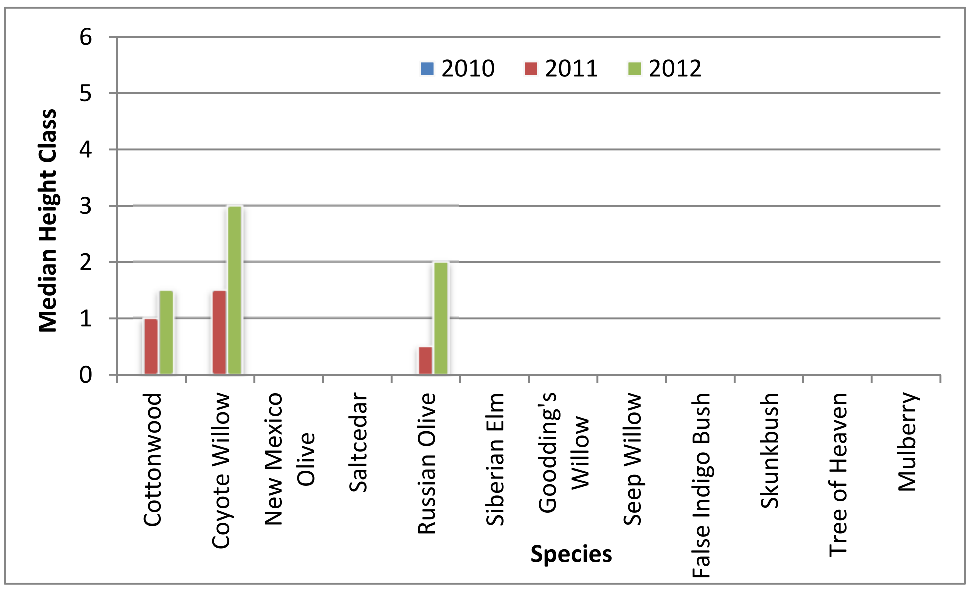


Figure 3.36. Median height classes of each woody plant species over vegetation polygons and each of the two sites with terrace features in 2010, 2011, and 2012.

Figure 3.37 shows how the height classes of woody plant species varied among each of the two terrace features over the 3-year period. Cottonwood and coyote willow increased at both terrace features SDC-9b/5b and SDC-9i, and Russian olive increased at SDC-9i. Russian olive and Goodding's willow appeared in 2012 at SDC-9b/5b, but had median height classes near zero in 2011.



a. SDC-9b/5b.



b. SDC-9i.

Figure 3.37. Median height classes of each woody plant species over vegetation polygons at each of the two sites with terrace features in 2010, 2011, and 2012. a. SDC-9b/5b, b. SDC-9i.

Island Destabilization Features

Change in woody vegetation height classes measured at island destabilization features showed an overall increase in cottonwood height in 2012 from 2011 (Figure 3.38). Coyote willow and Russian olive both increased in height in 2011 from 2010, but then declined again in 2012 to 2010 height classes. Goodding's willow appeared in 2011, but then had median height classes near zero in 2010 and 2012.

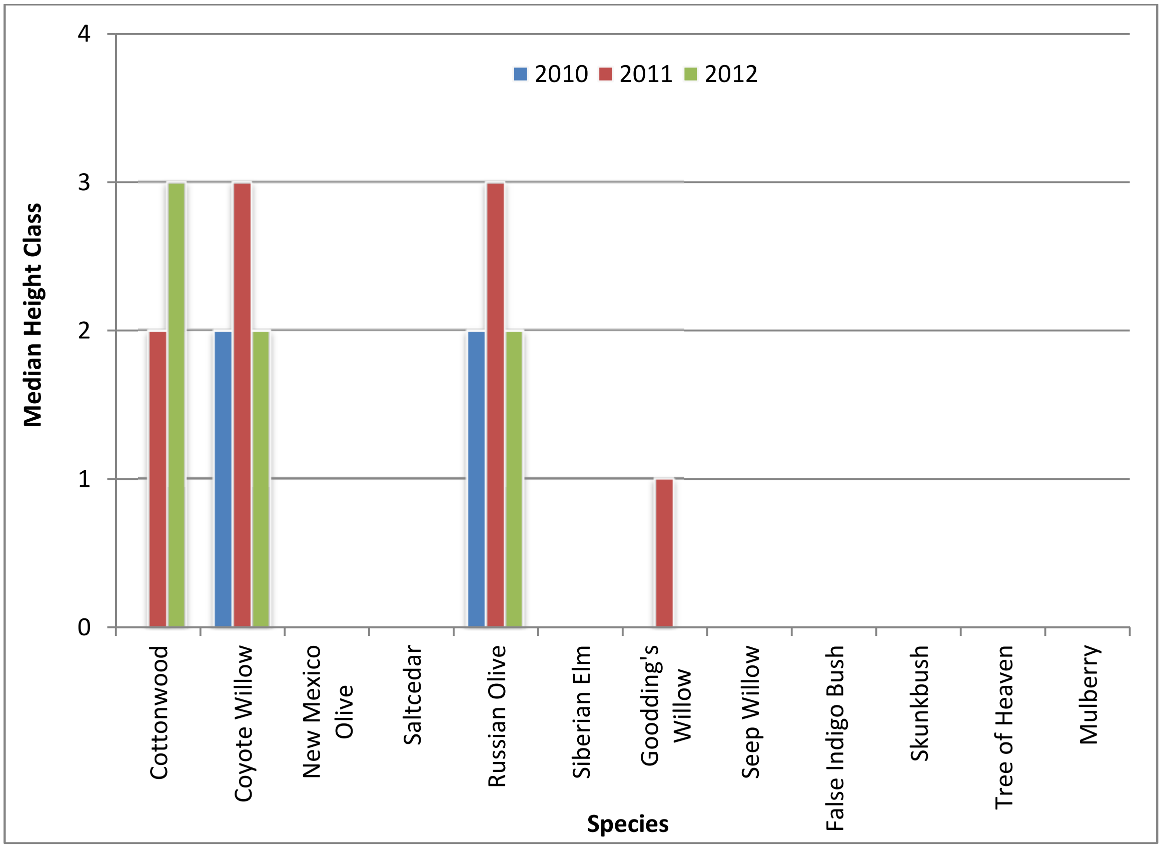
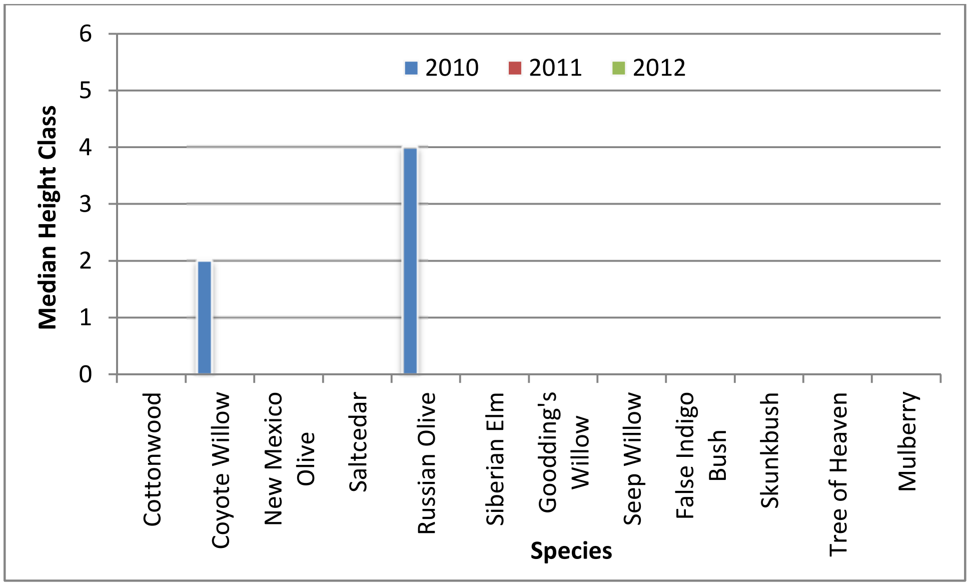
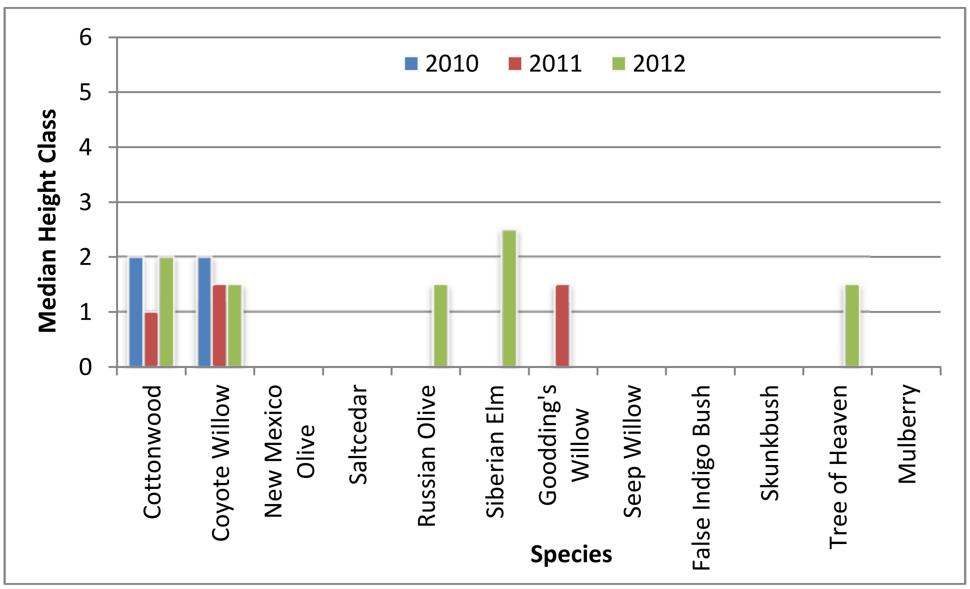


Figure 3.38. Median height classes of each woody plant species over vegetation polygons and each of the six sites with island destabilization features in 2010, 2011, and 2012.

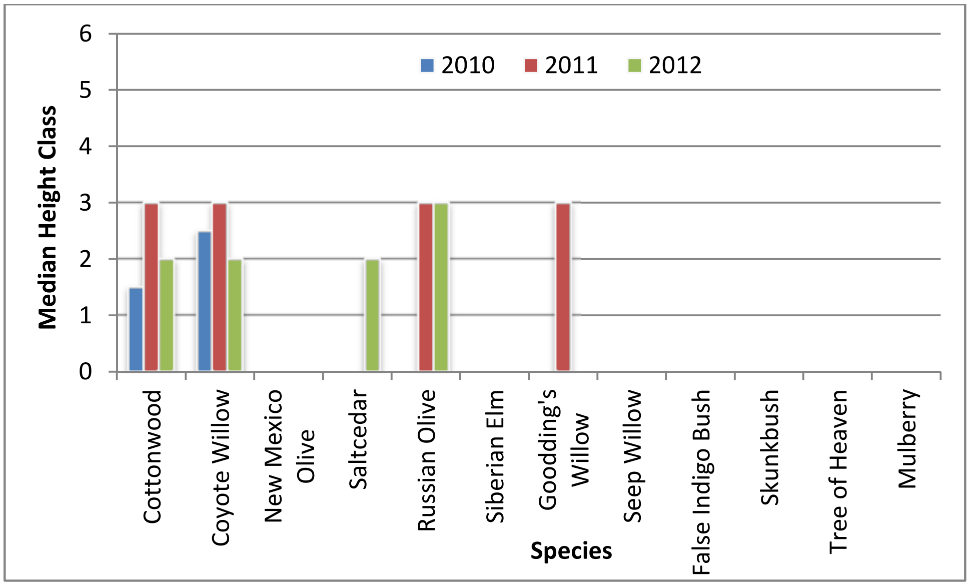
Figure 3.39 shows how the height classes of woody plant species varied considerably among each of the six high-flow channel features over the 3-year period. No consistent trends are evident across the six sites.



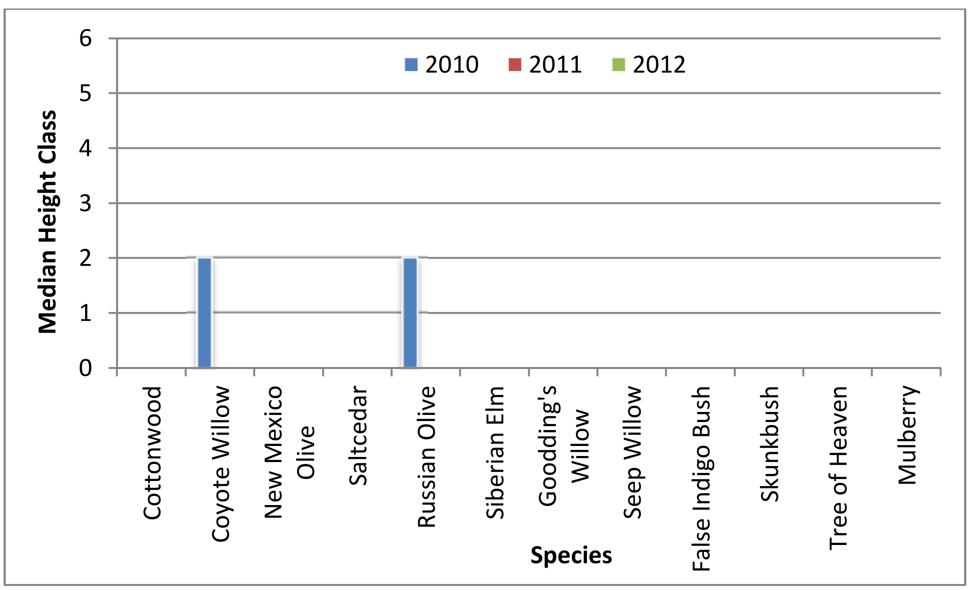
a. PDN-7i.



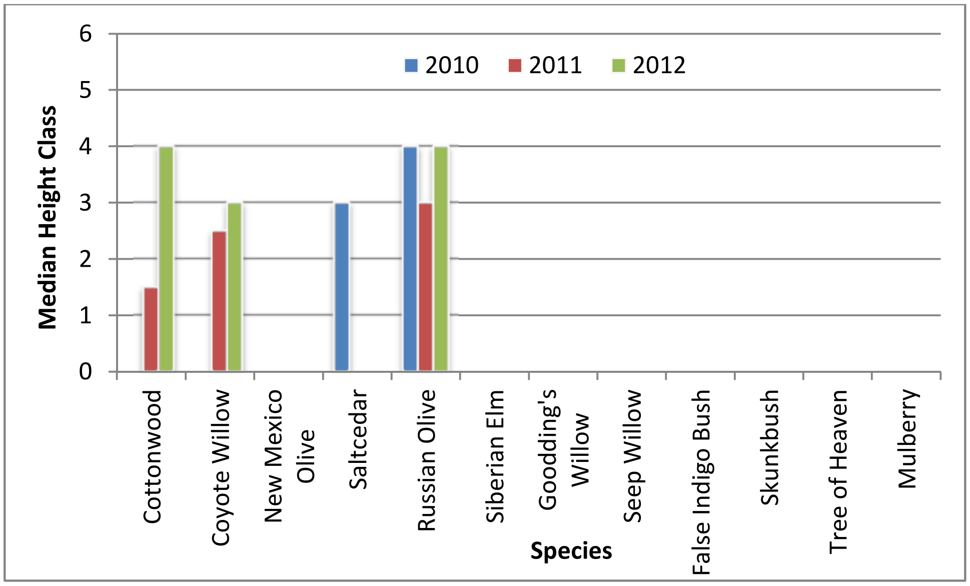
b. PDN-9i.



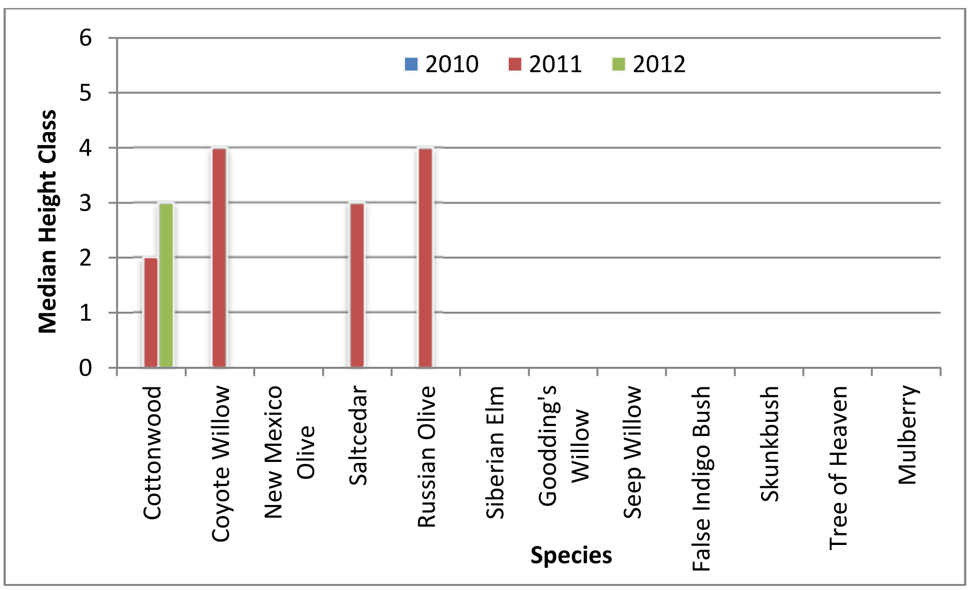
c. PDN-11i.



d. PDN-13i.



e. SDC-1i.



f. I-40-2i.

Figure 3.39. Median height classes of each woody plant species over vegetation polygons at each of the six sites with island destabilization features in 2010, 2011, and 2012.

a. PDN-7i, b. PDN-9i, c. PDN-11i, d. PDN-13i, e. SDC-1i, f. I-40-2i.

High-Flow Channel Features

Change in woody vegetation height classes measured across the six high-flow channel feature sites showed little change over time (Figure 3.40). Cottonwood height increased from 2010 to 2011, then remained the same in 2012. Coyote willow median height classes remained the same over the 3-year period, and Russian olive appeared in 2012. Overall median height classes ranged from 1 to 2.

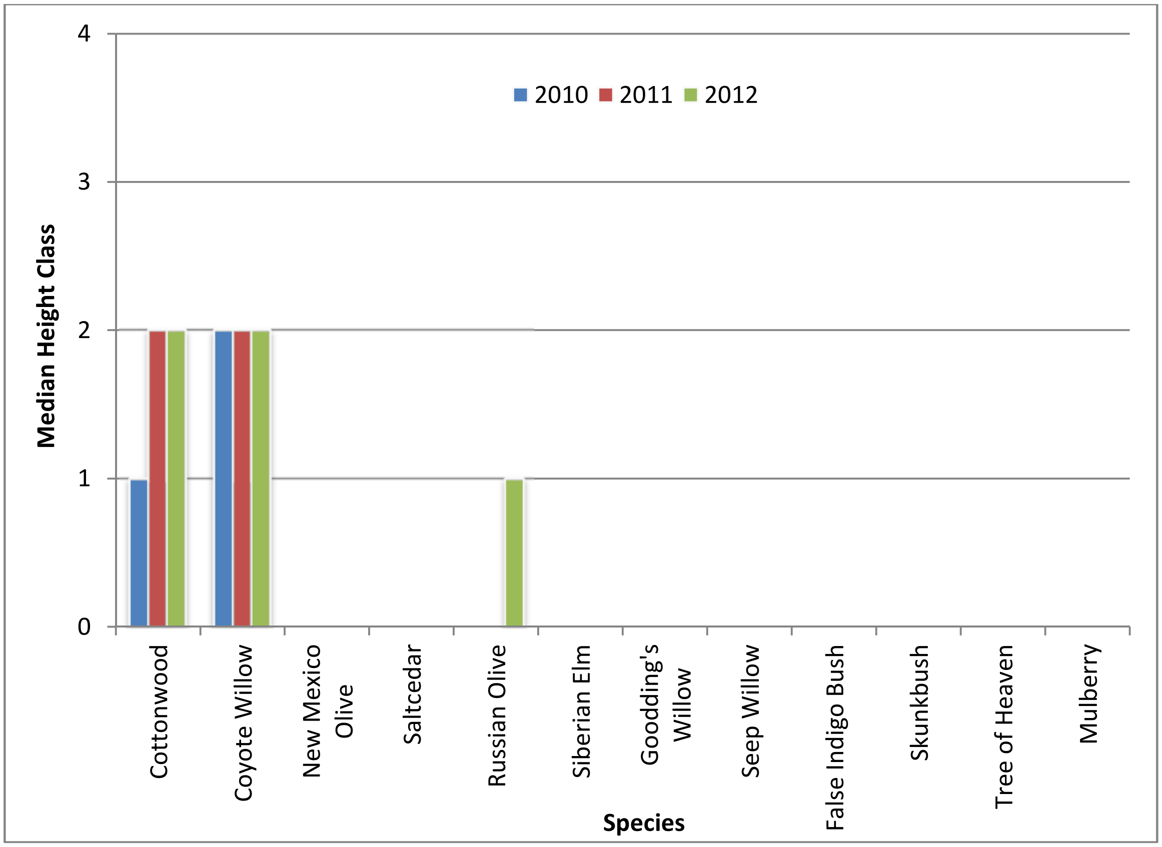
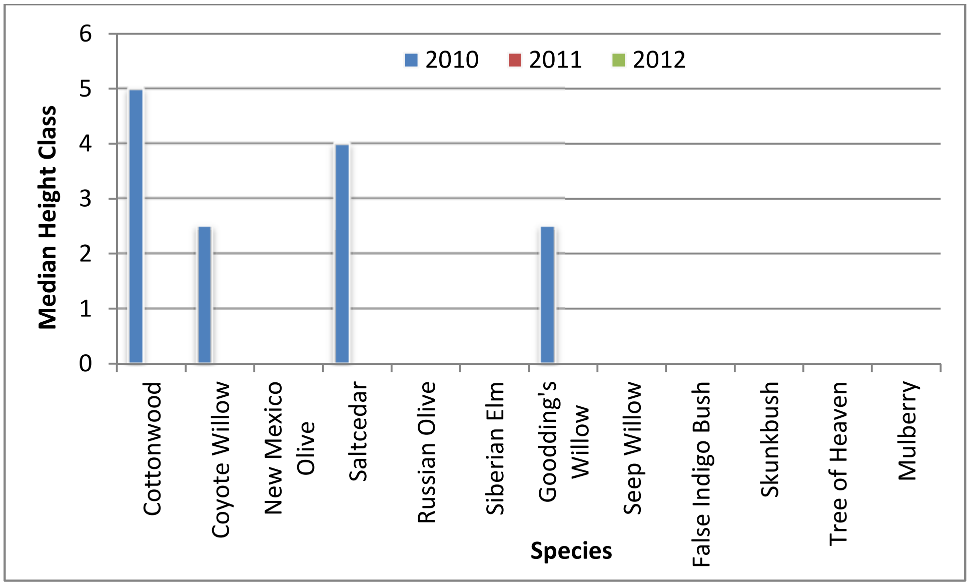
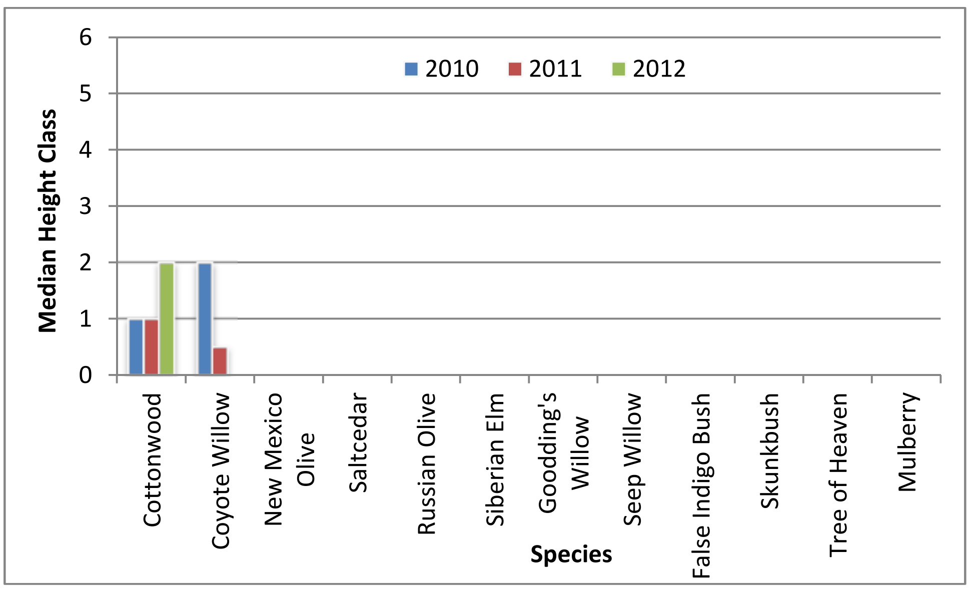


Figure 3.40. Median height classes of each woody plant species over vegetation polygons and each of the six sites with high-flow channel features in 2010, 2011, and 2012.

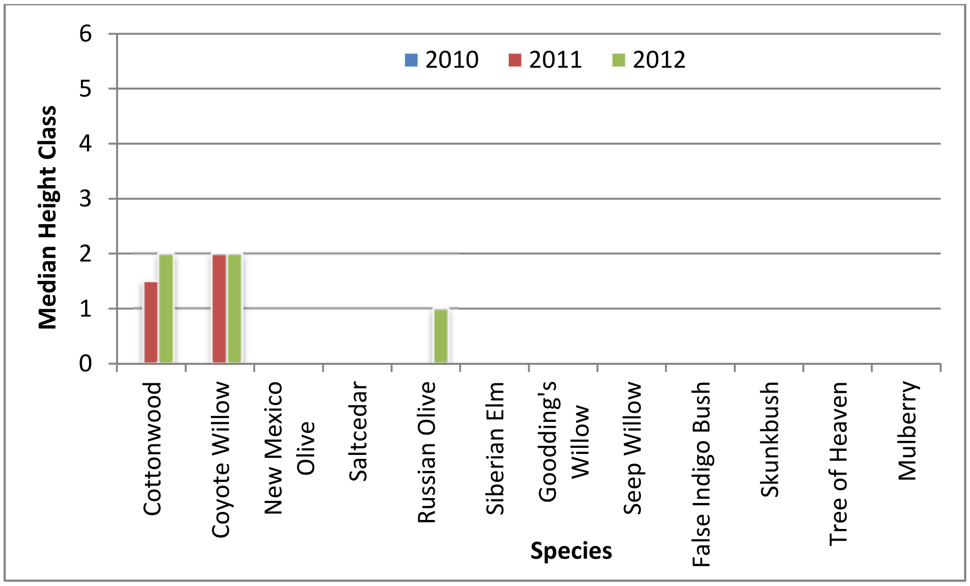
Figure 3.41 shows how the height classes of woody plant species varied among each of the six high-flow channel features over the 3-year period. Each site varied considerably from the other sites. The Los Lunas high-flow channel had the greatest height classes, ranging from 2 to 4, all other sites generally ranged from 1 to 2. All sites except Los Lunas, for which there was only data in 2010, showed median height class increases from 2010 through 2012, except for coyote willow at NDC 1, which declined in height class between 2010 and 2011.



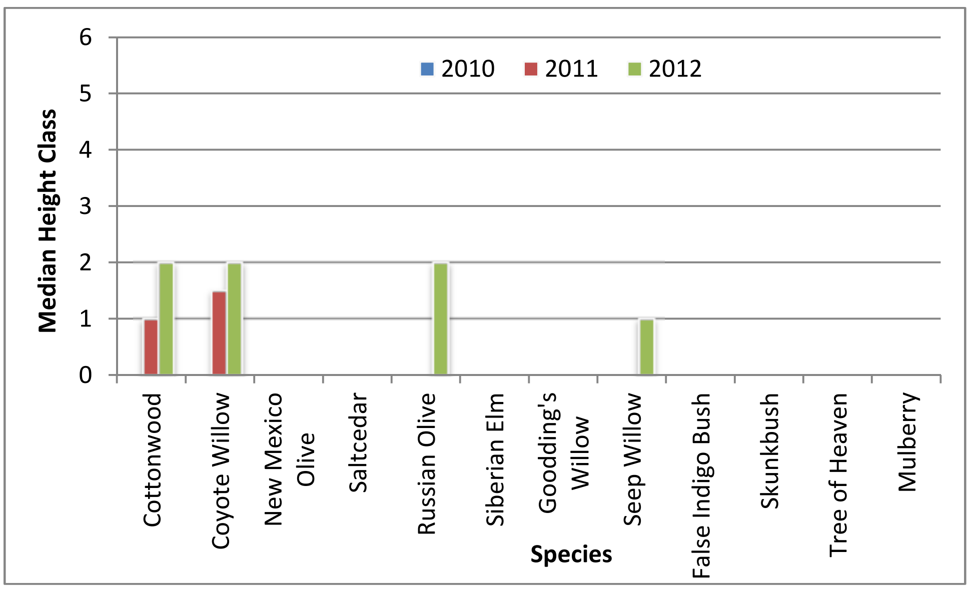
a. Los Lunas.



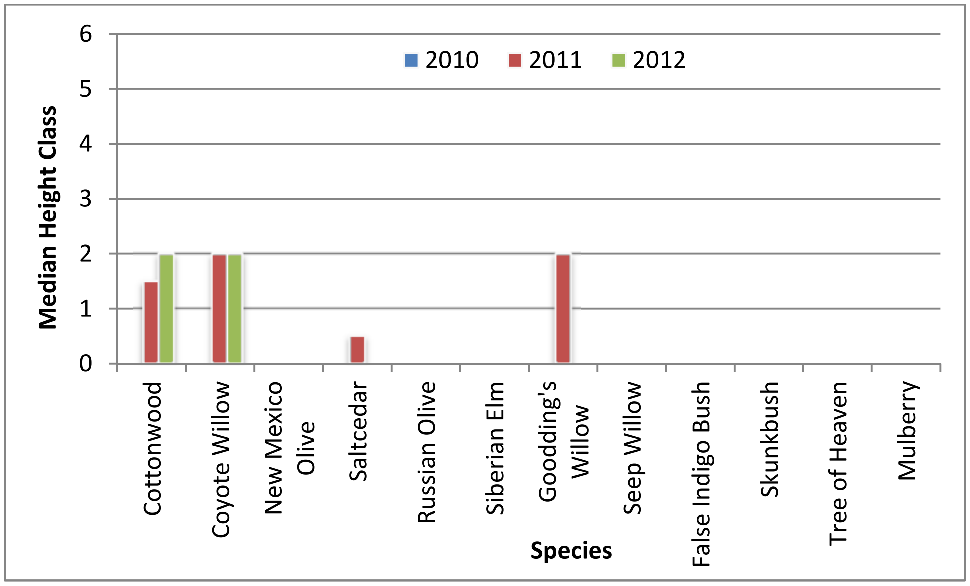
b. NDC-1ch.



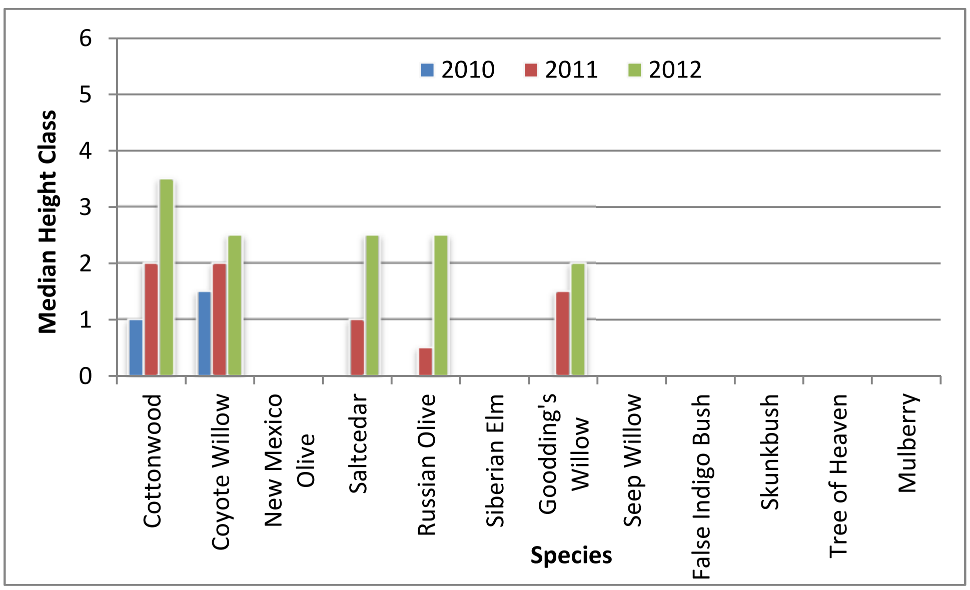
c. I-40-2b.



d. COA2.



e. RGNC.



f. LP1-3.

Figure 3.41. Median height classes of each woody plant species over vegetation polygons at each of the five sites with channel features in 2010, 2011, and 2012. a. Los Lunas, b. NDC-1ch, c. I-40-2b, d. COA2, e. RGNC, f. LP1-3.

Combination Features

Woody vegetation median height classes measured at sites with combinations of features were generally around height class 1 (Figure 3.42 and Figure 3.43). These sites were measured only in 2011.

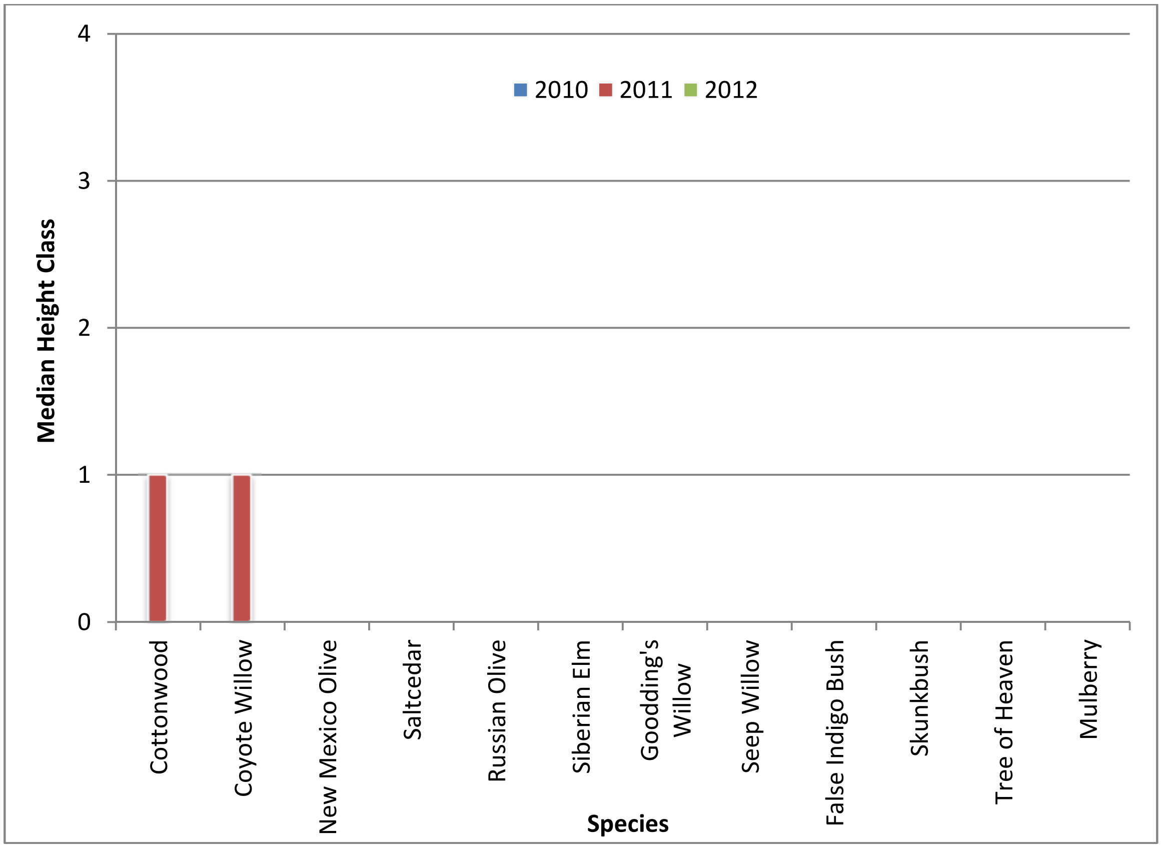


Figure 3.42. Median height classes of each woody plant species over vegetation polygons at the STR4-BC1 site with bankline bench and backwater features in 2010, 2011, and 2012.

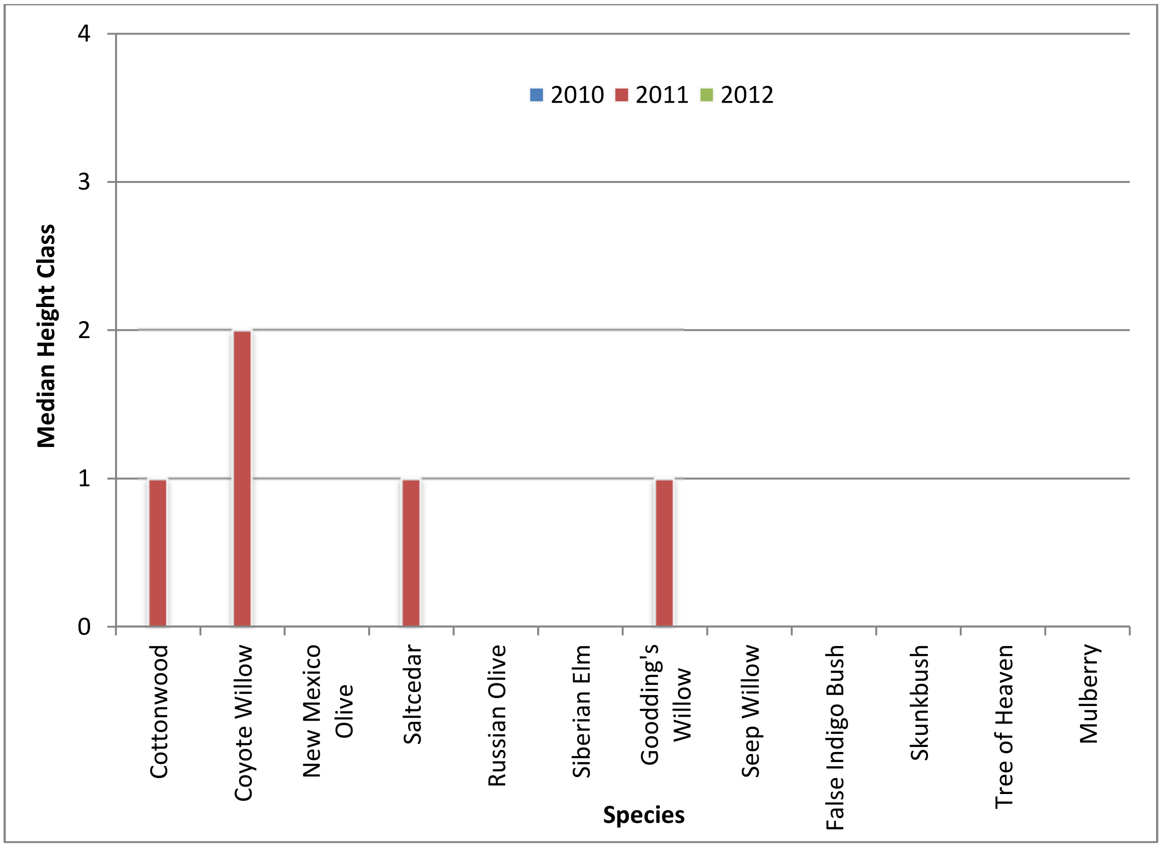


Figure 3.43. Median height classes of each woody plant species over vegetation polygons at the Bel-5-BC2 site with bankline bench/ephemeral channel/bankline terrace/backwater features in 2010, 2011, and 2012.

3.4 Woody Plant Density

Figure 3.44 shows woody plant median density classes over all sites and treatment features. In general, density classes were greatest among bank and island destabilization features, and among high-flow channel features. Median density classes also tended to increase from sparse to medium and dense between 2011 and 2012.

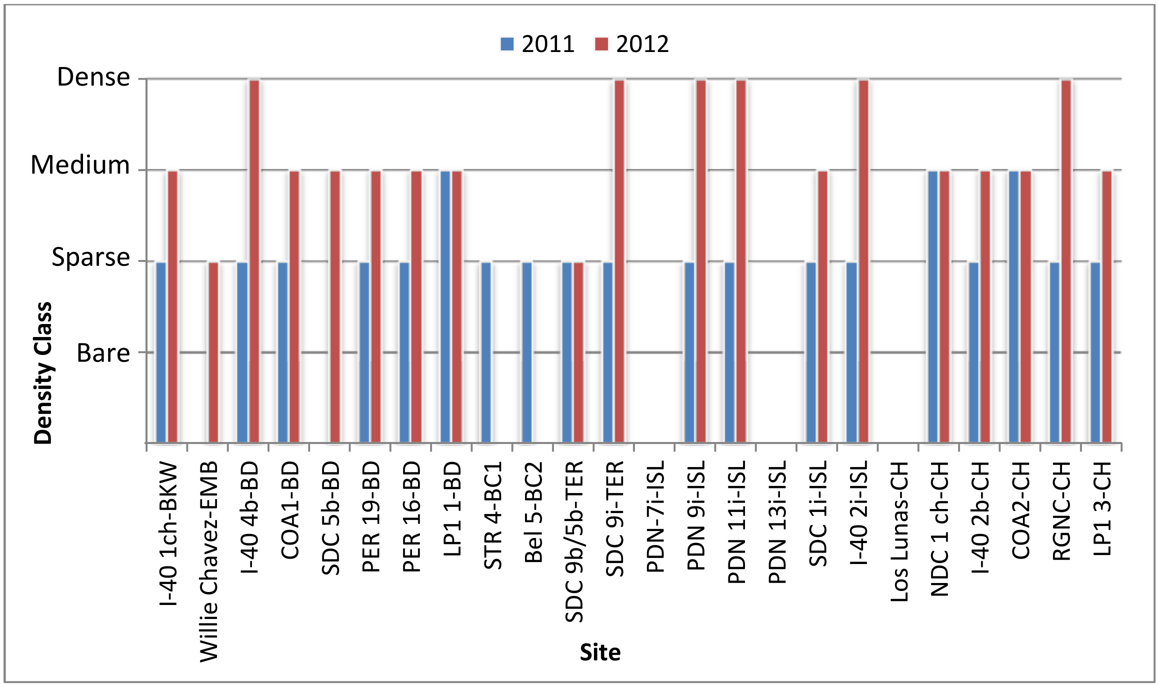


Figure 3.44. Density classes of woody vegetation over all vegetation polygons by site in 2011 and 2012.

Figure 3.45 shows median density classes for woody vegetation averaged over all sites, by feature type. All feature types that were measured in both 2011 and 2012 showed increases in density classes from sparse to medium over that time, while island destabilization features showed an increase from sparse to dense between 2011 and 2012.

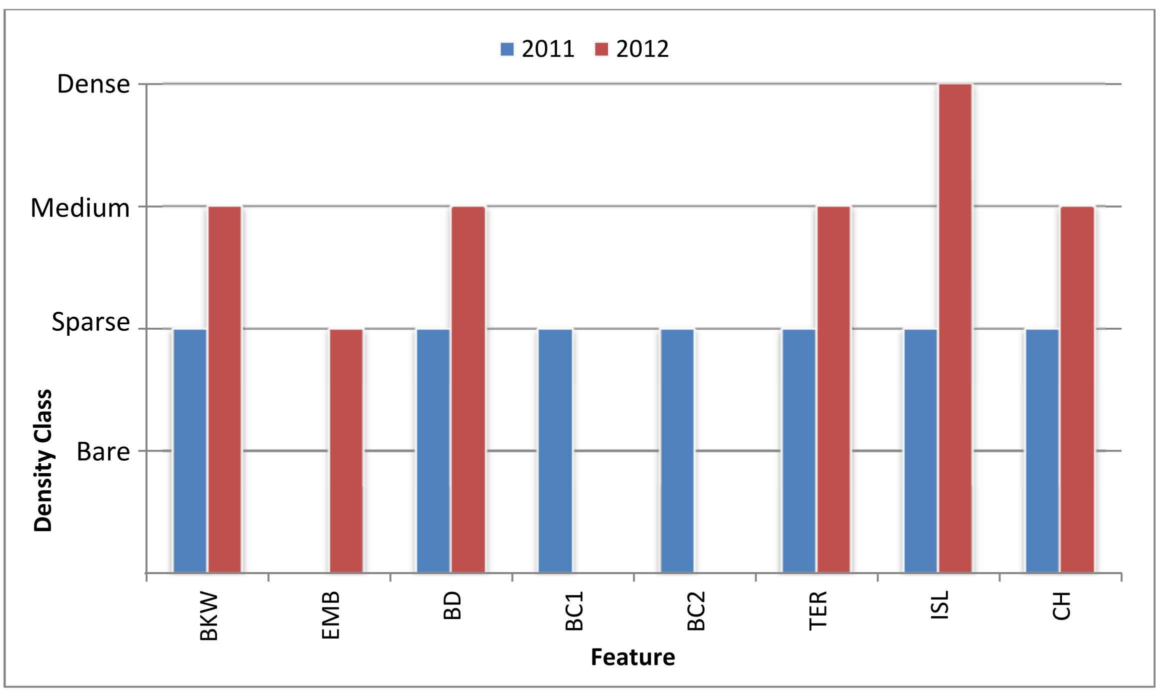


Figure 3.45. Density classes of woody vegetation by habitat restoration feature over all vegetation polygons per site in 2011 and 2012.

3.5 Tree Plantings Survival

Tree planting survival was monitored only at the Rio Grande Nature Center site, and survival results are presented in Figure 3.46. Survival is based on percent canopy cover/number of vegetation polygons. Cottonwood and Goodding's willow planting survival both steadily declined from 2010 through 2012. Coyote willow survival increased between 2010 and 2011, then declined slightly in 2012. All other species ranged from 0% to 40% cover in 2012, but were not present or measured in 2010 and 2011. This analysis was for all woody species, information on which species were actually planted and which regenerated naturally is not known.

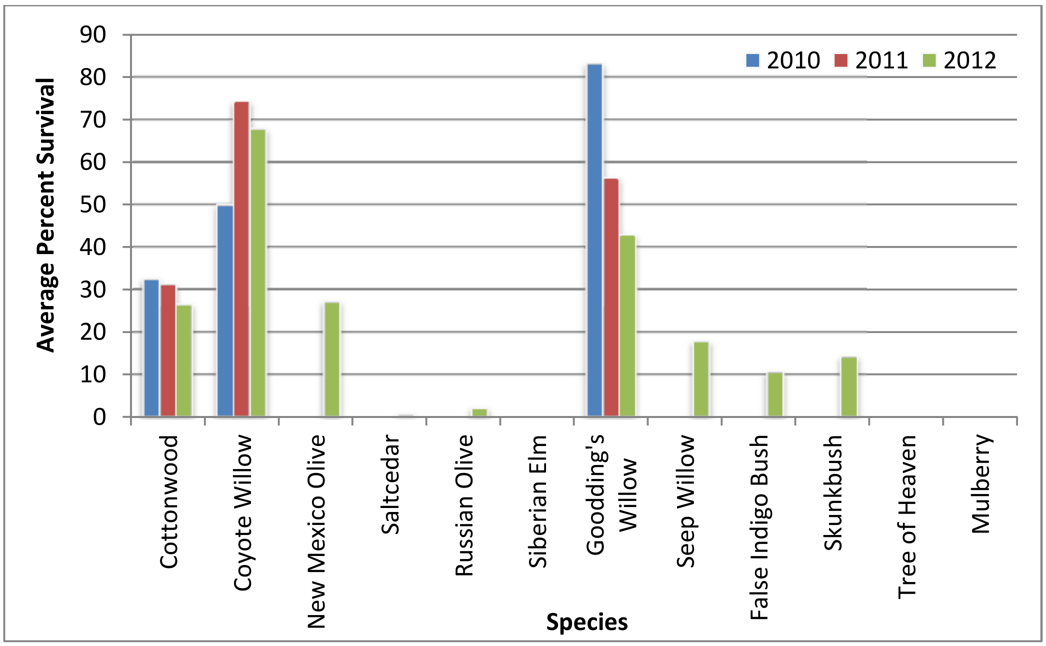


Figure 3.46. Percent survival of planted woody vegetation species at the Rio Grande Nature Center in 2010, 2011, and 2011.
(sum of % cover for all polygons in site) / (number of polygons in site)

3.6 Herbaceous Plant Cover

Total herbaceous plant cover averaged over all vegetation polygons across all sites and features in 2011 and 2012 is presented in Figure 3.47. Herbaceous vegetation cover was not measured in 2010. Herbaceous plant cover increased to about 100% at all sites and features that were measured both years. Wilcoxon tests for significant differences in herbaceous vegetation cover between 2011 and 2012 for bank and island destabilization and for high-flow channel features (i.e., features represented by six replicate sites) revealed significant differences for increases in herbaceous vegetation cover: $p = 0.01$, $p = 0.006$, and $p = 0.01$, respectively.

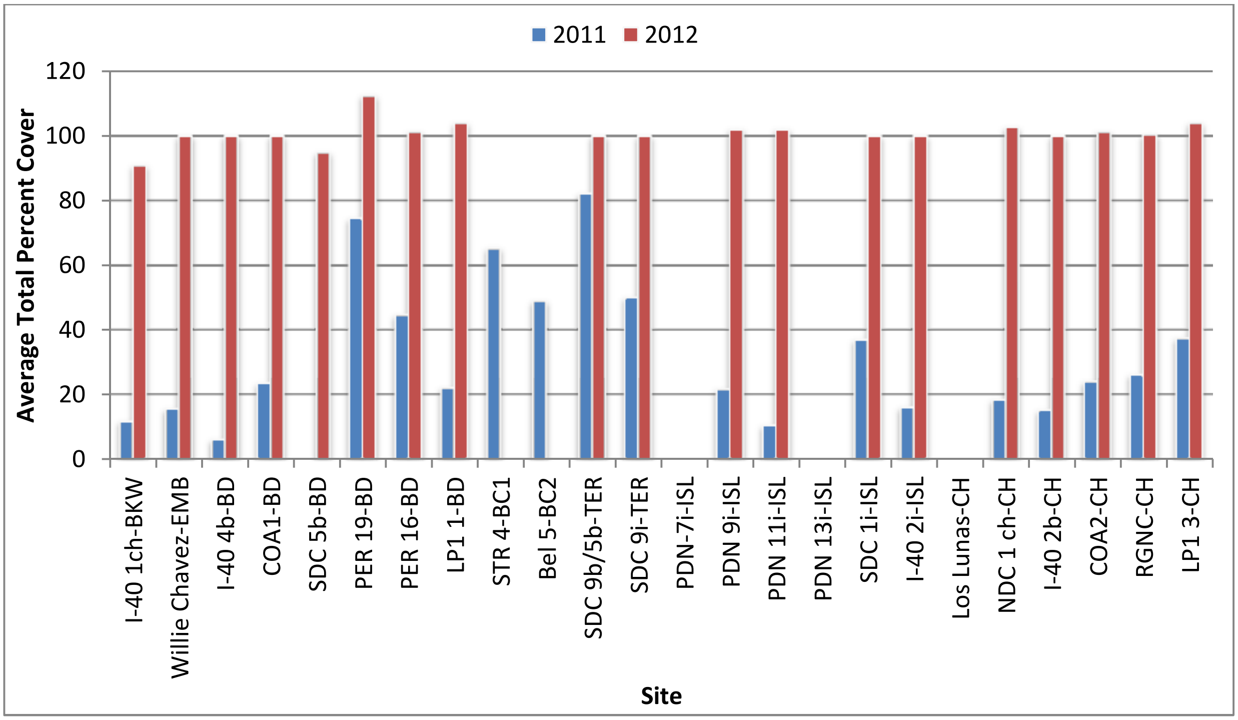


Figure 3.47. Herbaceous vegetation percent canopy cover among sites averaged over all vegetation polygons per site in 2011 and 2012.

3.7 Herbaceous Plant Heights

Herbaceous plant median height classes across all sites and features in 2010, 2011, and 2012 are presented in Figure 3.48. Most sites and features where characterized by median height classes of less than one, and only a few sites reached median height class of 1 by 2011 or 2012.

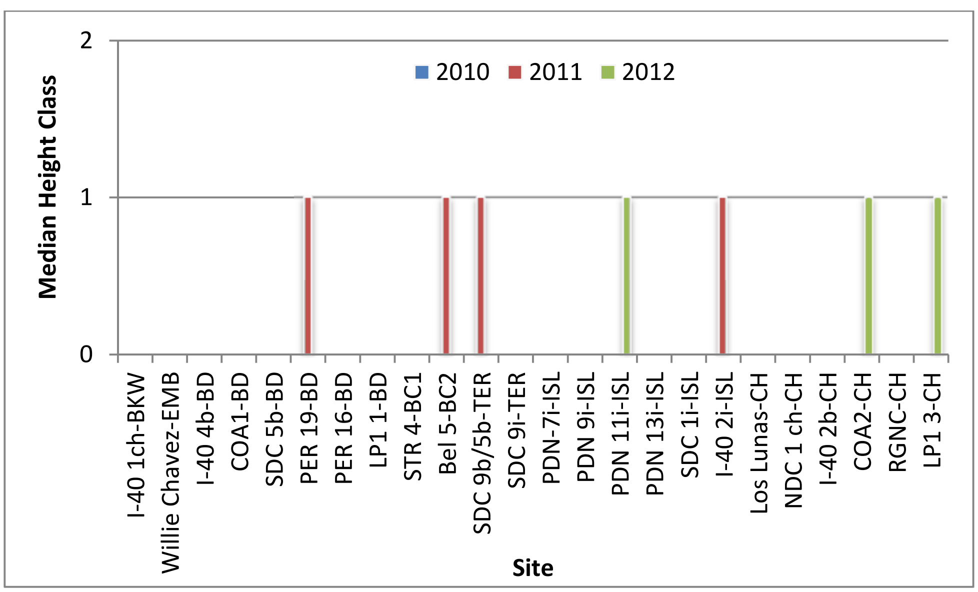


Figure 3.48. Median herbaceous vegetation height classes across all sites from all vegetation polygons per site in 2010, 2011, and 2012.

3.8 Herbaceous Plant Density

Herbaceous plant median density classes across all sites and features in 2011 and 2012 are presented in Figure 3.49. In general, median herbaceous density classes increased from sparse to medium or dense between 2011 and 2012. There were no clear patterns among features.

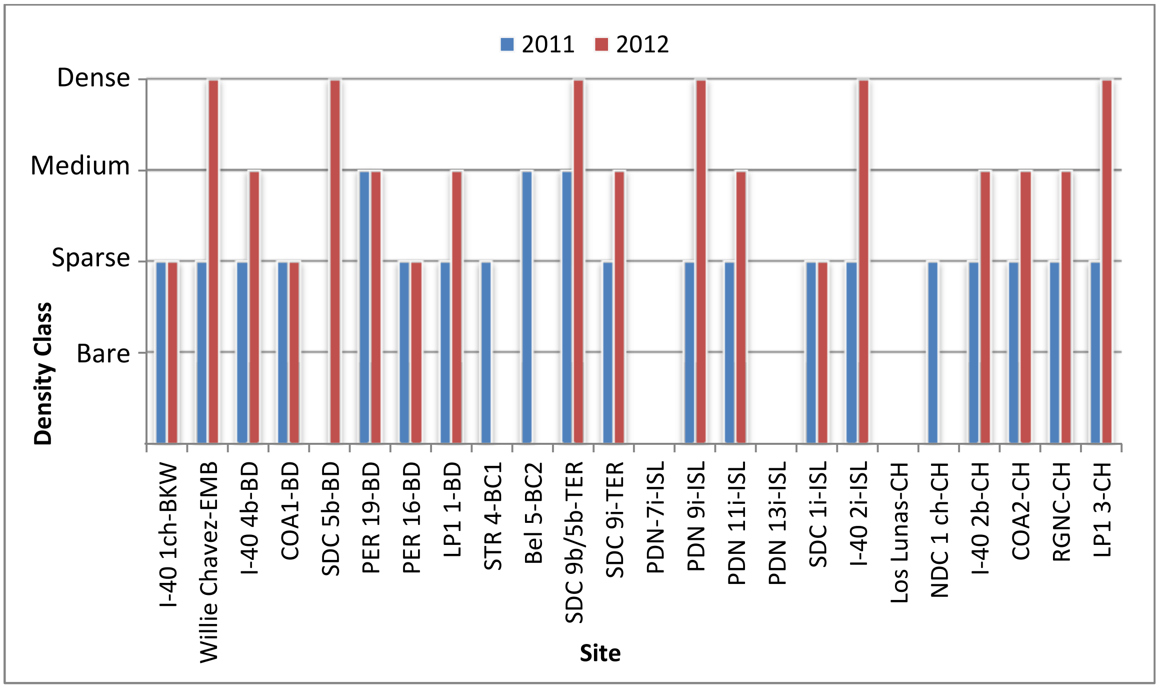


Figure 3.49. Density classes of herbaceous vegetation by habitat restoration feature over all vegetation polygons per site in 2011 and 2012.

3.9 Ground Cover

Total vegetation percent ground cover across all sites and features in 2010, 2011, and 2012 is presented in Figure 3.50. There were no clear trends in total ground cover by feature type or site. Total vegetation cover increased steadily over the 3 years at some sites and features like most of the bank destabilization features while declining at many of the island destabilization and high-flow channel features.

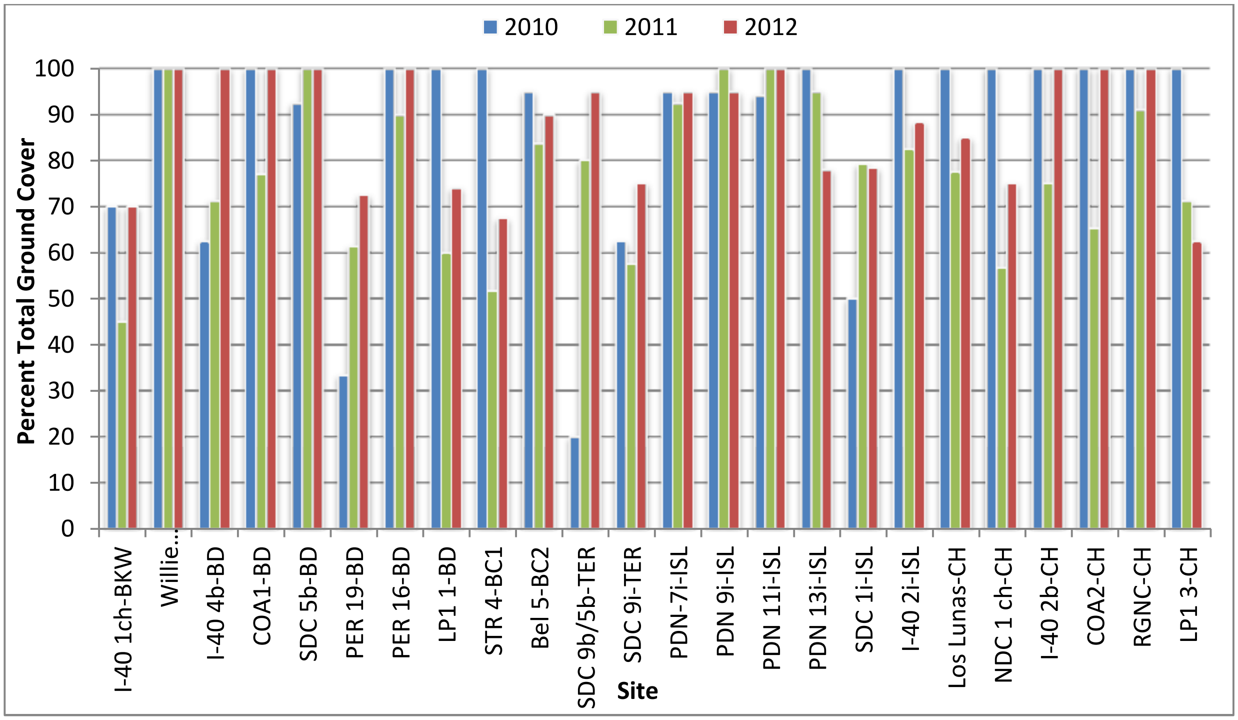


Figure 3.50. Total vegetation (woody and herbaceous) percent ground cover averaged over all vegetation polygons per site in 2010, 2011, and 2012.

3.10 SOUTHWESTERN WILLOW FLYCATCHER HABITAT EVALUATIONS

Information on potential flycatcher habitat is summarized in Table 3.6. Only situations where potential habitat was noted are presented in Table 3.2 (i.e., individual field data sheets marked Y/Yes). All other site/polygon visits were not identified as having potential flycatcher habitat (data sheets marked No, or not marked at all). I-40 high-flow channel vegetation polygons had the greatest representation of acknowledgements for potential flycatcher habitat, followed by vegetation polygons at the South Diversion Channel. No information was provided as to what criteria were used to evaluate habitat as having potential for the flycatcher.

Table 3.6. Summary of Southwestern Willow Flycatcher Habitat Potential from Field Observations across Habitat Restoration Sites in 2010, 2011, and 2012

Site Name	Polygon	P-Code	Year	Potential or Borderline?	Check Next Year?	Survey Next Year?	Notes
PDN-11i	1	4-PDN 11i-1	2012	Y	Y	?	Check for migrants (small)
I-40-1ch	2	8-I-40 1ch-2	2011	Y	Y	Y	Bird nests
I-40-1ch	6	8-I-40 1ch-6	2011	Y	Y	Y	
I-40-1ch	2	8-I-40 1ch-2	2012	Y	Y	Y	
I-40-1ch	4	8-I-40 1ch-4	2012	N	N	Y	
I-40-1ch	5	8-I-40 1ch-5	2012	Y	Y	Y	
I-40-4b	1	10-I-40 4b-1	2012	Y	Y	Y	
I-40-4b	2	10-I-40 4b-2	2012	Y	Y	Y	
I-40-4b	4	10-I-40 4b-4	2012	Y	Y	Y	

Site Name	Polygon	P-Code	Year	Potential or Borderline?	Check Next Year?	Survey Next Year?	Notes
COA2	3	12-COA2-3	2012	Y	Y	Maybe	
SDC-5b	1	14-SDC 5b-1	2012	Y	Y	Y	
Los Lunas	1	15-Los Lunas-1	2010	Y	Y	Y	
SDC-9i	1	26-SDC 9i-1	2012	Y	Y	Y	Migrants
SDC-9i	2	26-SDC 9i-2	2012	Y	Y	Y	Migrants

3.11 Saltcedar Leaf Beetle Evidence

No evidence of saltcedar leaf beetles was recorded for any site or vegetation polygon in 2010, 2011, or 2012. No information was provided as to what criteria were used to evaluate sites and polygons for saltcedar leaf beetle evidence.

3.12 Geomorphology Data at Vegetation Monitoring Sites

The MPT report (2012) states that geomorphology was surveyed concurrently with vegetation at 17 of the 20 HR sites. The dominant substrate types were sand (60.4% relative abundance) and silt (38.4%). Gravel comprised 1.2% of the substrate composition and no cobble was present at any of the HR sites surveyed (MPT 2012). Areas of aggradation and degradation were reported to occur at sites where vegetation monitoring occurred, but the data are anecdotal because comparisons were not made relative to site elevations after construction.

4 DISCUSSION

4.1 FISHERIES MONITORING

The use of different gear type in 2010 and 2011 and only sampling bankline and side channel features limits the potential use of the fisheries data for comparison among restoration treatments and between years. Evaluation criteria relative to HR objectives are needed so that monitoring can be structured to determine the efficacy of HR treatments. Most of the fisheries data were associated with specific mesohabitat data or the "conditions experienced by the fish captured" (MPT 2012). This approach has its own merits but provides little insight to those HR treatments that consistently provide the best habitat to the fish community and the silvery minnow. The use of two different gear types, fyke net and beach seine, in 2010 and 2011 to sample the fish community makes interpretations between years, sites, and data sets difficult. In addition, several deviations from the suggested field protocol in 2010 (e.g., using a fyke net as a beach seine when fish were not collected) further hinder interpretation of these data.

Fyke data collected in 2010 shows that relative abundance of silvery minnow differed among restoration sites with the highest catches made at the Los Lunas site and the I40-1ch site. Pairwise comparisons indicate that catches were consistently higher at the Los Lunas HR site than all other sites surveyed except for I40-1ch. Consistently high catches at the Los Lunas HR site (Hatch and Gonzales 2009, 2010) indicate that this site may provide insight into what constitutes an effective mosaic of habitat attributes that provide suitable habitat for refuge, spawning, and recruitment for silvery minnow during spring runoff.

Between the survey years silvery minnow went from being the most common species (97%) in 2010 to one of the least common species in 2011 (1%). During 2011, 12 silvery minnow were collected with beach seines while two were collected from a single fyke net set. The majority of sites sampled with the beach seine (78%) did not yield silvery minnow. From the data presented it is unclear of the differences in relative abundance between years is owing to a shift in fish community composition, the efficiency of the gear types used, or the lack of suitable habitat for the species during spawning (e.g., in 2011 majority of samples were collected from the main channel). Maintaining a consistent sampling protocol between surveys is necessary to make inference among and between collections.

4.2 VEGETATION MAPPING

The results of vegetation monitoring are difficult to interpret due to a lack of specific monitoring and/or HR objectives for riparian vegetation, and a lack of vegetation evaluation criteria relative to HR objectives. Most of the data were associated with vegetation polygons that were delineated at each of the HR sites, yet there are no definitions or criteria for how those polygons were identified and delimited, or what they represented, and the sampling design did not provide baseline or pre-construction data or control location data for comparison to treatment locations. Additionally, the data were collected at sites over a 3-year period that ranged from 8 to 10 years following construction, along with some sites where construction was conducted during the 3-year period. All of these factors, along with inconsistencies in field measurement protocols from year to year, make analysis and interpretation of those data very difficult.

The vegetation mapping did not follow defined protocols, nor did the vegetation polygons that were identified and delimited represent any particular type of vegetation communities or associations (Brown 1982; Dick-Peddie 1993; U.S. Geological Survey 2005), or structural types (Hink and Ohmart 1984; Callahan and White 2004). Most site map polygons changed from year to year in ways that reflected differences or errors in mapping protocols rather than actual changes in vegetation over time (see maps in Appendix 4). Because of this problem, mapped vegetation polygons could not be used to analyze change in vegetation communities or structural types over time.

4.2.1 Vegetation Canopy Cover, Height Classes, and Density Classes

Analysis of vegetation measurement data, including canopy cover, height classes, and density classes was limited due to a lack of restoration and/or monitoring objectives and because of the sampling design. Vegetation measurement data were analyzed by using data from averaging parameter measurement values across all mapped vegetation polygons per site per year rather than by vegetation polygons within sites, because of the inconsistencies in vegetation mapping protocols mentioned above. Therefore, each HR site was a sample replicate for each year, and sample replicates for each HR treatment type or feature equaled how many sites each feature was represented by. Backwater, embayment, and terrace features and sites with combinations of features all represented sample sizes of less than three, too little for statistical analysis. Bank and island destabilization features and high-flow channel features were distributed among six sites. Sample sizes of six also are generally too small for statistical analysis, but an attempt was made to use non-parametric Wilcoxon tests for differences in vegetation parameter values over time for those three feature types over the 3-year period.

The series of graphs presented in the Results above provides indications of trends in vegetation parameter values over the 3-year monitoring period. However, apparent trends may only represent annual variation in parameter values, rather than actual trends over time. Only statistical testing of data with appropriate sample replication will determine whether such apparent trends are significant. Even for those feature types where statistical testing was performed with a sample size of six, significance of differences may or may not be real because of the small sample sizes.

Since no objectives or hypotheses were provided for analysis or statistical testing, we chose to examine and present how parameter values changed over time and, when possible, provided a statistical test of whether such changes were significant. These findings may then be applied to questions pertaining to the effects of previous HR treatments on vegetation and provide information on trends in vegetation change over a 3-year period following previous HR treatments that occurred various years prior to the time that vegetation measurements were made (2010–2012).

Woody Vegetation Canopy Cover by Species, Sites, and Features

Monitoring data for woody vegetation were the most complete among sites, years, and species, and woody vegetation is probably the best attribute of vegetation to relate to questions about vegetation responses to HR treatments. Additionally, woody vegetation mapping using Hink and Ohmart (1984) and modified Hink and Ohmart methods (Callahan and White 2004) are the most widely used vegetation mapping and HR monitoring methods used to evaluate HR treatment effects to vegetation along the MRG. Therefore, the Results of data analysis here are most likely to be used in relation to Hink and Ohmart structural type vegetation mapping.

Coyote willow likely dominated the canopy cover of most sites and features because it rapidly colonizes disturbed riparian soils and grows rapidly once established. Why coyote willow cover decreased over the 3-year monitoring period is unknown. Given that most sites were constructed several years prior to monitoring, coyote willow should have continued increasing in cover. Coyote willow was likely prevalent at destabilization features due to its ability to colonize disturbed soils or because existing roots remained following construction. Cottonwood represented the second greatest canopy cover for similar reasons, but grows slower and tends to be represented by fewer individuals unless locations are flooded for prolonged periods of time. The general increase of cottonwood cover, especially on island destabilization features may be due to the fact that cottonwood trees attain larger sizes than coyote willow and enough time had elapsed for cottonwood trees to surpass the smaller maturing coyote willows. The only significant statistically tested trends are consistent with the graphic patterns, that of coyote willow cover decreasing across bank destabilization features, and cottonwood canopy cover increasing across island destabilization features. The non-significant changes in canopy cover of woody plant species among the different features over 3 years were likely due to the very small sample sizes.

Saltcedar tends to rapidly colonize newly disturbed riparian soils, why it did not become more dominant across sites and features is unknown, and why cover was so variable among and within feature types is unknown. Other riparian woody species such as Goodding's willow and Russian olive tend to colonize disturbed riparian areas over longer periods of time. Other woody species measured tend to occur in drier former floodplain environments and were therefore not well represented among the sites and features that were measured.

An unusual pattern in the data that was illustrated in many of the graphs (e.g., Figure 3.1) was a decline in woody plant species canopy cover between 2010 and 2011, and then an increase between 2011 and 2012. Whether such a trend was real or within variation of measured data is uncertain, but such a trend does not make sense unless there was an environmental factor causing a decline in canopy cover for 1 year, which is unlikely for woody vegetation. More likely, such a 1-year decline represents measurement error, which was perpetuated across all sites and species in 2010. Such an error may have resulted from differences in measurement protocols from year to year.

Woody Vegetation Height Classes

The lack of clear changes in height classes of coyote willow across sites and feature types over the 3-year period may have resulted from coyote willow plants reaching near maximum heights over the time periods between feature construction and the 3-year monitoring period. The increasing trend in cottonwood height classes over the same 3-year monitoring period may have occurred because recently established cottonwood trees were still growing because they take longer to reach mature heights. The lack of clear patterns for changes in size classes of other woody species is difficult to interpret. Larger trees such as Russian olive, Goodding's willow, and Siberian elm tended to increase in size classes over the 3 years, but trends among features was not evident. Smaller species such as saltcedar did not show clear trends over time or features, perhaps for the same reason as seen with coyote willow.

Size class data were categorical and not well replicated, making statistical testing of trends impossible. Whether changes in size classes were real cannot be determined at this time.

4.2.2 Woody Plant Density

The increase in woody plant density classes across all feature types between 2011 and 2012 indicates that recruitment of wood plant species was still progressing several years following HR treatments. Density class data were categorical and not well replicated, making statistical testing of trends impossible. Whether changes in density classes were real cannot be determined from the data.

4.2.3 Tree Plantings Survival

Apparent declines in the survival of coyote willow, cottonwood, and Goodding's willow at the Rio Grande Nature Center from 2010 through 2012 may have resulted from drought conditions during those years. However, other woody species such as New Mexico olive (*Forestiera pubescens*), seepwillow (*Baccharis salicina*), false indigo bush (*Amorpha fruticosa*), and skunkbush (*Rhus trilobata*) all increased in 2012. Those later species are shrubs adapted to drier environments and perhaps more resistant to drought effects. Canopy cover data from vegetation polygons was used to indirectly measure tree planting survival and was subject to the same potential error as discussed above for woody plant canopy cover trends. Also, canopy cover averaged over vegetation polygons includes data from both planted trees and naturally regenerating/growing trees. Monitoring the status of individual plants would have provided a more direct measure of planting survival.

4.2.4 Herbaceous Plant Cover

The dramatic and significant increase in herbaceous plant cover between 2011 and 2012 across all sites and features is difficult to explain. Either such an increase did indeed occur, perhaps due to increased late spring rainfall in 2012, or those results are from measurement error. Either way, the increase was across all feature types.

4.2.5 Herbaceous Plant Heights

Despite the great increase in herbaceous plant cover between 2011 and 2012, there was no increase in herbaceous plant height classes over the same period. Generally, herbaceous plant cover and heights are positively correlated. If 2012 was a much better year for herbaceous plant growth as indicated by the increase in cover above, then herbaceous plant heights should also have been greater. Perhaps height class categories were not sufficiently different to reflect changes in actual plant heights between years if measured on a continuous scale at the cm or inch resolution.

4.2.6 Herbaceous Plant Density

The increase in herbaceous plant density classes between 2011 and 2012 indicates that more herbaceous plants were present in 2012, probably annual plants. Such findings are consistent with the increase in herbaceous plant cover data, but not with the lack of change in herbaceous plant height data. Such findings indicate that herbaceous vegetation probably did in fact increase between 2011 and 2012 across all sites and features, but that herbaceous plant height classes were measured at a scale inadequate to reflect actual differences in vegetation height.

4.2.7 Ground Cover

Total vegetation ground cover included both woody vegetation and herbaceous vegetation canopies. Given that woody vegetation canopies tend to overlay herbaceous vegetation, interpretation of these data is difficult and perhaps not meaningful. As discussed above, woody vegetation canopy cover did not show clear patterns across sites and features over the 3-year period, nor did total vegetation ground cover, whereas herbaceous vegetation cover alone increased significantly between 2011 and 2012. Therefore, total vegetation ground cover is probably influenced greatly by the woody plant species component, and no clear trends among features or years is evident.

4.2.8 Southwestern Willow Flycatcher Habitat Evaluations

Backwater features at the I-40 site and some of the Albuquerque Phase 2 terrace features were the primary locations were potential flycatcher habitat was identified, only in 2012. There is no information on what environmental factors or protocols were used to evaluate suitable flycatcher habitat, nor was there any discrimination between migration or breeding habitat.

4.2.9 Saltcedar Leaf Beetle Evidence

There were no records of saltcedar leaf beetle evidence from any of the sites or features over the 3-year period. There also was no information on the criteria or protocols used to evaluate saltcedar leaf beetle evidence.

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5 MONITORING RECOMMENDATIONS

The historical provisions of the 2003 *Biological Opinion on the Bureau of Reclamation's Water and River Maintenance Operations, Army Corps of Engineers' Flood Control Operations, and Related Non-Federal Actions on the Middle Rio Grande (MRG), New Mexico* required the federal agencies and signatories to the Program to conduct 10 years of annual monitoring for each HR project. As described above, current monitoring efforts lack standardized monitoring objectives and criteria, parameters, and protocols for HR effectiveness monitoring. With funding obtained through the Program, the Pueblo of Sandia, assisted by SWCA, developed a comprehensive HR plan for lands under its jurisdiction (SWCA 2008), followed by a comprehensive HR effectiveness monitoring plan (SWCA 2012a) and a comprehensive HR effectiveness monitoring sampling and analysis plan (SWCA 2012b) to evaluate the effectiveness of Rio Grande HR efforts for the Pueblo of Sandia. This approach mirrors the planning efforts completed by the Program, which has developed HR analysis and recommendations reports for the San Acacia, Isleta, and Albuquerque reaches of the MRG. The Program has yet to develop a comprehensive monitoring approach for HR projects.

The Pueblo of Sandia monitoring plan (SWCA 2012a) provides a useful template for the Program. The monitoring plan provides background information on the MRG and HR, along with background information on HR effectiveness monitoring, evaluation criteria, and monitoring methods and protocols. The HR effectiveness monitoring sampling and analysis plan (SWCA 2012b) provides detailed monitoring plans for specific HR sites and features, while a 2013 report (SWCA 2013) provides information on implemented HR effectiveness monitoring. The Pueblo of Sandia monitoring plan includes both low- and high-intensity monitoring methods that are scalable to meet monitoring objectives and budget constraints.

A brief summary of HR effectiveness monitoring steps that were provided in the SWCA monitoring plan (SWCA 2012a) that can be applied to the Program's monitoring efforts are as follows:

1) **Clearly state all goals, objectives and develop evaluation criteria** for monitoring particular response parameters (variables) for each particular HR project. The first and most important step to monitoring and evaluating HR projects and treatments is the development of goals and objectives for evaluation. Criteria used to evaluate restoration success based on monitoring data are based on the objectives of restoration and should correspond to the appropriate species recovery plans and programmatic biological opinions.
2) **Determine parameters, metrics, and monitoring sampling designs (spatial and temporal**) that will be used to address the objectives for monitoring those response parameters (including need for control and/or reference sites). Consider appropriate parameters and combinations of parameters to monitor and the appropriate spatial and temporal resolution of monitoring. The design used must provide data that may be evaluated relative to restoration success criteria or conditions in an objective and meaningful way.

3) **Establish monitoring sites and sampling locations** (study plots, transects, etc.). Once an effectiveness monitoring design is determined, monitoring sites will be based on the locations of restoration projects and treatments, and sampling locations will be a function of the monitoring design and where parameters are to be measured and monitored. Ideally, sampling units (e.g., plots, transects) should be randomly or systematically located to be spatially independent, avoid researcher bias, and replicated to achieve statistical power. Again, replication of independent sample units is very important. Replication of subsample units (e.g., quads within plots) is less critical, but still important to adequately measure parameters within sample units and to reduce measurement variation for the samples. Data analysis approaches should be determined at the same time that sampling designs are developed, in order to ensure that sampling designs will provide data appropriate for the desired analysis. This step is very important and often overlooked.

4) **Collect pre-treatment or baseline data** (ideally collected over a period of several years prior to a treatment, but at least 1 year prior) using the chosen sampling design. Ideally a before/after design would be employed. This baseline data provides pre-treatment reference conditions to which post-treatment change may be compared. Since the Program has implemented many HR projects, a post-treatment monitoring design would need to be used. The baseline data for post-treatment monitoring, where there was not baseline data collected, would then reference the conditions at the time sampling took place.

5) **Initiate data management (to be applied to step 4 above as well)**, including quality assurance/quality control (QA/QC), field data collection methods, storage, access, updates, and reporting. A critical part of the monitoring and evaluation process is the development of rigorous data management. The Program has already developed the Database Management System (DBMS). The database structure developed for the Pueblo of Sandia monitoring project could be incorporated into the DBMS.

6) **Analyze and interpret year one baseline data** for appropriate sample sizes and adequacy of sampling design. Again, as stated above, analytical approaches should have been determined at the time that sampling designs were developed to ensure appropriate data for these analyses. Data analysis provides the critical tool for evaluating the effectiveness of HR treatments, using data representing parameters, and testing hypotheses and questions relative to the effectiveness of HR based on goals and objectives. Results of data analysis such as summaries and graphics may also be archived as part of data management.

7) **Modify sampling as needed** or continue with initial design. Repeat Steps 4, 5, and 6 with Year 2 and Year 3 data for short-term monitoring. Continue for 5 to 10 years or more for long-term monitoring. Based on analysis of pre-treatment baseline data (or Year 1 post-treatment data), adjust sampling as needed. For example, sample units may not be the appropriate size or configuration, sample sizes (replication) may be too small for analysis, or sample sizes may be larger than necessary. This is an important step to minimize the need for changes in monitoring design in the future.

8) **Implement HR treatments** (construction or alteration of the environment). Once baseline sampling designs, pre-treatment data analyses, evaluation of the initial monitoring and design, and changes to the monitoring design have been completed as needed, then implementation of HR treatments should commence.

9) **Initiate restoration treatment implementation assessment** to determine if restoration treatments were conducted properly. If not, modify until treatment methods are correct. Implementation assessments should be conducted as soon as possible following treatments to determine whether the construction or other treatment activities have been completed as planned. If possible, treatments should be imposed at a time of year that is most appropriate relative to the sampling schedule for restoration evaluation parameters that will be measured. For example, to accommodate post-restoration measurements of perennial vegetation, treatments should be imposed during the winter, spring, or early summer, so that vegetation may be measured during the late summer when most appropriately measured following restoration treatments.

10) **Continue response variable (parameter) monitoring** using the same pre-treatment sampling design for at least 3 years after treatments (short-term), preferably up to 10 years following treatments (long-term). The duration of monitoring depends on the temporal dynamics of the variables being measured and management needs.

11) **Continue data management**, QA/QC, storage, access, updates, and reporting.

12) **Analyze and interpret each year's data relative to evaluation criteria** for evaluating restoration treatment effectiveness or success on target species habitat and population structure parameters. This is the ultimate and key step to determining the effectiveness of restoration treatments, and it is repeated over time to evaluate trends in success.

13) **Modify sampling approaches, design, and analyses as needed** over time if any aspects of the monitoring are determined to need change or improvement. This step is generally included as part of an adaptive management framework for the entire restoration project or program.

The Pueblo of Sandia monitoring plan and sampling and analysis plan (SWCA 2012a, 2012b) are applicable to the entire MRG and HR efforts for the silvery minnow, flycatcher, exotic tree control, wildfire fuels reduction, and general bosque vegetation and wildlife community management. We recommend that the Program review and evaluate these documents to develop an MRG HR effectiveness monitoring plan, followed by specific HR effectiveness monitoring sampling and analysis plans for the various HR projects for the silvery minnow, flycatcher, and bosque vegetation and wildlife. Elzinga et al. (2001) provide useful guidance and recommendations for general vegetation monitoring programs and Roni et al. (2005) provide useful guidance specifically for HR effectiveness monitoring of aquatic lotic systems.

Each HR project and/or treatment has a particular set of goals and objectives aimed at modifying the environment to provide improved conditions for each species and ultimately improved population structure parameters and viability. The particular desired states or parameters of environmental conditions may then be used both as objectives for specific restoration treatments and as specific criteria to evaluate HR effectiveness monitoring following restoration treatments.

Specific restoration treatments may enhance environmental conditions for some particular life stage or biological process that will enhance the species, while other treatments may enhance other environmental conditions for the same or different life stages or processes of the species. Together, several different restoration treatments may be used in a particular restoration project to enhance the overall ecological status for a species and meet the goals of that restoration project. In order to determine whether the goals of a restoration project and the specific objectives of restoration treatments have been met, monitoring or standardized repeated observations and measurements of parameters must be taken over time and compared to the predetermined evaluation criteria in order to evaluate restoration success. Such effectiveness monitoring spans a range of sampling designs and intensities from simple post-restoration treatment monitoring aimed at simply observing and recording environmental conditions over time relative to desired restoration goals or evaluation criteria to more complex and more useful experimental or research monitoring designs that can actually test the effectiveness of restoration treatments with pre-treatment baseline data and experimental control sites (see Habitat Restoration Monitoring below). However, non-experimental monitoring and evaluation approaches cannot be used to evaluate the cause and effect of restoration treatments on conditions of those parameters.

The first steps will be to define specific HR objectives, and then to develop specific HR effectiveness evaluation criteria based on those objectives. A summary of HR effectiveness criteria for the minnow and flycatcher that were developed by SWCA for the Pueblo of Sandia and the Program (SWCA 2012a, 2012b) are presented below to provide some guidance on item 1 above. Be aware that the detailed information and process for determining the evaluation criteria below was considerable and is not presented here, but is available in those plans (SWCA 2012a, 2012b). The detailed development of HR effectiveness monitoring protocols and monitoring implementation planning that were developed to measure and provide data, and the process for evaluating the monitoring data based on the evaluation criteria presented below, also are available in the Pueblo of Sandia plans (SWCA 2012a, 2012b). The information that is presented here is within the context of those two documents, and use of this information should be in context as to how it was developed and implemented.

5.1 Habitat Restoration Effectiveness Monitoring Evaluation Criteria

HR monitoring is only useful for evaluating HR effectiveness if there are: 1) well defined objectives for HR treatments, 2) well defined and measurable restoration effectiveness criteria that are based on the restoration objectives, and 3) specific measurement protocols and sampling designs to measure environmental and demographic parameters that represent the restoration objectives and evaluation criteria. Success of restoration treatments can then be evaluated based on findings of measured parameters relative to the criteria.

Evaluation criteria may include both qualitative descriptive conditions relative to the known habitat requirements for the species of concern, and/or quantitative measurements of habitat parameters with known ranges of values that define suitable habitat for the species of concern. Ideally, the HR planning phase included restoration techniques that were designed to produce such habitat characteristics for the species. The HR techniques that have been used along the MRG are largely based on those presented by TetraTech (2004). The HR treatments should then be evaluated as to whether or not the desired or target set of conditions were met to achieve modified habitat characteristics for the species. Those habitat characteristics or parameters are what should be measured during monitoring, and the values of those parameters compared to the known suitable ranges or criteria for the species. Although TetraTech (2004) provides general descriptions and goals for the various HR techniques presented. Specific HR objectives are stated or can be inferred in the compliance documents (e.g., biological assessment, biological opinion, environmental assessment) prepared for each project. HR evaluation criteria must be developed for each HR project separately accounting for local variation in treatments and environmental conditions at each separate HR site. Likewise, the HR evaluation criteria should be developed for each specific HR project based on the specifics of HR treatments and objectives at each HR site. For larger-scale evaluations of HR restoration effectiveness across multiple projects across entire subreaches of the MRG or across the entire MRG, the HR objectives, evaluation criteria, and monitoring protocols should be standardized to address the variation among multiple individual HR projects within those reaches, or focus only on HR projects that do represent some level of consistency.

The following discussion presents HR effectiveness criteria and associated environmental or habitat and demographic or population parameters, evaluation criteria, and application to common MRG HR treatments (TetraTech 2004) that were presented in the Pueblo of Sandia monitoring plan (SWCA 2012a). Tables presented below represent recommended parameters and evaluation criteria for both specific types of HR treatment techniques, and for the overall subreach of the MRG. These tables should be utilized in context the background information and with the recommended monitoring protocols and designs presented in Chapters 1 and 3 of the Pueblo Sandia monitoring plan (SWCA 2012a). Note that some of the parameters and criteria are qualitative and appropriate for low-intensity monitoring, such as vegetation structure and dominant tree species composition, while others are quantitative and will require experimental sampling designs with appropriate sample replication and should include before/after and treatment/control sampling designs. Chapter 3 of the Pueblo of Sandia monitoring plan (SWCA 2012a) and all of the Pueblo of Sandia Sampling and Analysis Plan (SWCA 2012b) provide discussions of MRG HR effectiveness monitoring approaches, designs and protocols to measure the above parameters and evaluation criteria in order to determine HR success.

5.1.1 Rio Grande Silvery Minnow Habitat Evaluation Criteria

The following text and tables presenting recommended habitat evaluation criteria for the endangered Rio Grande silvery minnow were taken directly from SWCA (2012c:36–43, 53), and wording has been modified only slightly to such that reference to the Sandia Subreach has been replaced with reference to the greater MRG.

Evaluation criteria for the recovery of the silvery minnow in the MRG focus on mesohabitat characteristics, geomorphology, and hydrology, as well as population abundance, age class distribution, reproductive success, and habitat selection. In general, the primary goal of silvery minnow HR is to provide habitat to effect a positive population response that will maintain a population of silvery minnow in the MRG. HR in the MRG within the should help to reduce the long-term probability of silvery minnow extinction by leveraging critical biological processes of silvery minnow birth, death, and emigration to maintain a positive capacity for population growth over multiple spatial scales and over the range of water discharge regimes characteristic of the contemporary MRG.

Restoration treatments have been implemented throughout the MRG to promote an active channel and enhance aquatic habitat diversity at both course and fine scales. The proposed restoration activities were designed to improve aquatic habitat by restoring channel dynamics and floodplain connectivity. Silvery minnow HR involves creating, enhancing, and maintaining habitat for all life stages, including: 1) egg retention, larval development, and young-of-year habitat; 2) overwintering habitat; and 3) year-round adult habitat. Specific HR objectives include the following:

- Increase mesohabitat heterogeneity by creating additional low-velocity habitats. Emphasis should be placed on creating backwater, embayment, and pool mesohabitats because these are lacking within the MRG.
- Increase the inundation frequency and duration in islands and bank-attached bars at low to moderate flows. Design flows are 1,400 cubic feet per second (cfs), 2,500 cfs, and 3,500 cfs, representing the 6.8% inundation frequency to meet the 25-day duration threshold for dry, normal, and wet years, respectively.
- Use passive restoration by enabling fluvial processes to function naturally, especially to processes to promote sediment mobilization and redistribution. Targeting the restoration of fluvial processes would help to ensure the sustainability of the system.

5.1.2 Site Selection

Sites selected for fisheries monitoring should be stratified by treatment type (Feature Type as Constructed [MPT 2012]). Stratification by treatment type will provide an opportunity for determining the efficacy of restoration prescriptions. Next, sites should be selected systematically (Thompson 2002) so that survey units will be selected along the entire longitudinal reach and not clustered at the upstream or downstream ends. The stratification scheme could be modified depending on the anticipated spring runoff (e.g., excluding sites that are not anticipated to be inundated). A minimum of three sites from each strata (treatment type) should be sampled.

A simple example would be to assume that a total of 10 bankline treatments are anticipated to be inundated during spring runoff. One out of 4 sites (~25%) is desired for sampling of this stratum. The ten sites should be enumerated from 1 to 10 (starting at the northernmost site). Then a random number between 1 and 4 should be selected and that number becomes the first sampling unit followed by every fourth unit thereafter. For example if the number two is picked randomly as the starting point then units 2, 6, and 10 would be included in the sample. This type of sampling scheme will ensure that HR treatment types will be selected from the along the entire longitudinal gradient of the reach in question and will increase the precision among samples because it can be expected that specific restoration treatments with sufficient inundation will provide similar habitat. In addition stratification by treatment type will further aid in determining HR prescriptions that are most effective at providing suitable habitat for silvery minnow over the range of anticipated spring runoff discharges.

5.1.3 Habitat Evaluation Parameters and Criteria

The parameters described below are considered important habitat evaluation criteria for the silvery minnow in terms of channel geomorphic processes and subsequent benefit to the species. These parameters may be used as evaluation criteria to assess the effectiveness of HR treatments for the silvery minnow and the functioning condition and how the habitat features may contribute to species sustainability and vulnerability to environmental stressors.

1) **Habitat Heterogeneity –** Refers to the availability of shallow, low-velocity habitat (e.g., bank-attached bar, island and floodplain topography) to provide a variety of depths and low-velocity habitat over a range of discharges. Desired habitat features are composed of a variety of depths averaging ≤ 0.30 m (0.98 foot) (not to exceed 0.8 m [2.6 feet]) and low velocities (≤ 0.30 m/s) ± 2 × standard error (SE) (Hatch and Gonzales 2008, 2010). Gonzales and Hatch (2009) provide different vital, non-substitutable, microhabitats within the space of probable daily movement and over probable stages of flow.

   To estimate the amount of low-velocity habitat, it is necessary to take a series of representative measurements and extrapolate them over the treatment area. The amount of low-velocity habitat can be estimated within a project area at a specific discharge by monitoring the velocity profile across multiple cross sections within a project site. The average velocity profile within a segment of the project reach can provide an estimated proportion of the active channel area that has low-velocity habitat at the specific discharge that the cross sections were monitored. Using the total area of the active channel and the estimated proportion of low-velocity habitat within the active channel, a rough estimate of the area of low-velocity habitat present within a restoration project area can be calculated. If channel morphology is not similar throughout the site, the site can be broken into segments that have similar channel morphology to assess the availability and sustainability of low-velocity habitat present in each segment.

2) **Longitudinal Channel Variability –** It is hypothesized that high longitudinal spatial heterogeneity of river channel features (e.g., defined by the ratio of river width to depth over different flow regimes) would allow for dispersal success of the silvery minnow to habitat patches favorable to species survival as the site-specific habitat features change over variable hydrologic conditions. In contrast, low longitudinal heterogeneity in the spatial sequencing of channel width-to-depth ratio would be indicative of a river channel that has been channelized with little habitat heterogeneity over the range of anticipated river discharge, which would affect dispersal success to habitat patches.

   The results can be analyzed by comparing changes in the width-to-depth ratios of the surveyed cross sections within the project areas over time and by comparing changes at treatment sites with those at control sites.

3) **Inundation Threshold** – A measure of the inundation of restored habitat focusing at design discharge (e.g., representing dry, normal, and wet water years, respectively) or below elevation of mean May discharge where there is adjoining tracts of floodplain habitat subject to inundation at that flow stage.

4) **Inundation Duration –** A measure of the inundation of mesohabitat features at design flows. Alternatively, a minimum of 12 days sustained duration of river channel-floodplain coupling at height of silvery minnow spawning, generally during mid-May.

5) **Dendritic Drainage of Floodplain Surfaces** – To link all low-lying depressions and maintain floodplain-river coupling during river recession to effectively reduce the possibility of isolated ephemeral floodplain catchments and stranded fish (Hatch and Gonzales 2010).

6) **Low-flow Minimum Habitat Coverage –** A measure of the spatial distribution and characteristics of suitable silvery minnow habitat patches during extremely low-flow conditions, such as would occur during drought conditions. Theoretical models suggest that suitable habitat patches should constitute more than 58% of the total available patches (Gardner et al. 1987). Potentially suitable habitat patches would be indicated by a ratio of pool-to-pool length to bankfull width equal to 2.5 to 4.0. The presence of silvery minnow measured during low-flow conditions in summer would confirm the suitability of habitat patches.

7) **Water Quality –** Silvery minnow embryos are highly sensitive to water salinity. The salinity at which one-half of the silvery minnow embryos died (LC_{50}) was calculated to be 4.2 parts per thousand (ppt) (Cowley et al. 2009).

   Maximum lethal limits (LL_{50}) for temperature and maximum lethal concentrations (LC_{50}) of dissolved oxygen and ammonia for the silvery minnow have been investigated by Buhl (2006) for four age groups (3–4 days post-hatch [dph] larvae, 32–33 dph juveniles, 93–95 dph juveniles, and 11-month-old subadults) in reconstituted water that simulated conditions in the MRG. The upper 24-hour and 96-hour LL_{50} for all four age groups fell between 35 degrees Celsius (°C) and 37°C (95 degrees Fahrenheit [°F] and 99°F). Water temperatures of inundated floodplain habitats range between 20°C and 25°C (68°F–77°F) (Hatch and Gonzales 2010; Mapula et al. in prep). The 24-hour and 96-hour LC_{50} for dissolved oxygen ranged from about 0.6 to 0.8 mg/L for silvery minnow that had access to the water surface (to gulp air) and 0.8 to 1.1 mg/L for fish denied access to the surface. In the pulsed ammonia tests, exposures to high ammonia concentrations for only 1.5 hours were nearly as toxic as exposures to the same concentrations for 96 hours. Based on nominal total ammonia concentrations, the larvae (96-hour LC_{50} for all pulses, 16–23 mg/L as N) were about twice as sensitive as both juvenile age groups (96-hour LC_{50} for all pulses, 39–70 mg/L as N).

8) **Mixed Floodplain Vegetation –** Large seasonally inundated habitat patches dominated by herbaceous riparian vegetative communities (e.g., fine-stemmed, low-growing vegetation dominated by sedges, rushes, bulrushes, and grasses) intermixed with woody habitat patches composed of woody riparian species (e.g., coyote willow) and fine-textured detritus and organic matter (Hatch and Gonzales 2010).

5.1.4 Silvery Minnow Population Evaluation Criteria

The HR goal for the MRG may be stated as reducing the long-term probability of silvery minnow extinction by leveraging critical biological processes of silvery minnow birth, death, and emigration to maintain a positive capacity for silvery minnow population growth over multiple spatial scales and over the range of water discharge regimes characteristic of the contemporary MRG. Examples of specific population objectives include:

1. Exhibiting successful reproduction at least 2 out of 3 years on average.
2. Having no more than one missing age class for age classes I–IV for spring samples that coincide with spawning for population monitoring.
3. Exclude non-native congeners (e.g., plains minnow [*Hybognathus placitas*]) from the MRG.

Demographic/Population Evaluation Parameters and Criteria

Direct evaluation of silvery minnow performance may be accomplished by evaluating important population parameters for the species. Population parameters are often measured by CPUE. Estimates of CPUE can be calculated by dividing the total number of fish captured by the sample effort (Quinn and Deriso 1999; Hubert and Fabrizio 2007). This method of standardizing silvery minnow catches assumes that absolute numbers of silvery minnow will continue to increase as sample effort increases. The management utility of CPUE depends on the proportional relationship between the numbers of fish captured and the amount of effort expended (Hubert and Fabrizio 2007). Below are six proposed silvery minnow demographic/ population parameters that should be monitored and evaluated as indicators of silvery minnow success following restoration.

1) **Index of Abundance and Density –** Estimates of population abundance and density are useful parameters of silvery minnow response and are essential for determining the amount of habitat needed to meet established management objectives based on a quantitative relationship between habitat and population size or density. Interpretation of a time series of population estimates is also important for determining risk of extinction. A time series of population estimates is an important basis for determining risk of extinction. Interpretation of such data involves comparisons of CPUE estimates from different sites or for estimates made at different times at the same sample site, commonly involving inferential statistics approaches (e.g., an approximate t-test procedure for estimate comparison).

2) **Index of Active Habitat Selection –** Active selection of restored and natural habitat features as measured by CPUE. Evidence of active habitat selection is central to the evaluation of restored habitat features and provides evidence of silvery minnow use of restored habitat features. Active specific habitat types by silvery minnow can also be interpreted as an adaptive response that maximizes species fitness. Determination of habitat actively being selected by silvery minnow details opportunities for directed management to leverage primary population processes (i.e., birth, death, immigration, and emigration) to achieve management purposes.

3) **Index of Minimum Required Habitat –** Planning for the provision of habitat to overcome various habitat limitations requires that a quantitative relationship between habitat and population size or density be established for the species, and that sufficient habitat be maintained to meet an established recovery target based on the habitat-population relationship. The average of estimates of silvery minnow density can be employed to estimate the minimum amount of wetted habitat needed to maintain the population that yields a desired effective population size (*Ne*) (i.e., the population that yields a desired *Ne* divided by the average of estimates of silvery minnow density yields

an estimate of the minimal area of wetted habitat that will safeguard against developments warranting jeopardy determinations and that will safeguard the species' critical habitat).

4) **Age Class Structure –** Estimates of the survival and mortality of a population within a defined spatial and temporal context provide useful evaluation criteria in order to assess the health of that population relative to declines based on mortality. Since survival rates tend to vary among age classes or life-history stages, survival rates should be partitioned by age. An age- or life-stage-specific record of survival and mortality is essential for understanding observed patterns of population growth and decline. Likewise, an age- or life-stage-based record of survival and mortality is essential for predicting the future growth or decline of populations of concern, including management intervention strategies that are expected to alter rates of birth and death.

5) **Young-adult Ratio –** A young-adult ratio founded on age-specific rates of reproduction and survival may be used as a population evaluation metric. Such a metric may provide an early indication of problematic demographic trends that may warrant directed management adjustments.

   A sample reflective of the true abundance of animals in a population by age is the basis of an estimate of the ratio of silvery minnow young to adult. Age estimation is most expeditiously conducted through the use of an age-length key in which the probabilities of ages within discrete length classes are used to convert numbers at length into numbers at age. Until more definitive information is available, we advocate that young-of-year silvery minnow be distinguished during late summer months as those less than 38.0 mm standard length (SL) based on previous findings of length at age (Hatch and Gonzales 2008, 2010). Young-of-year silvery minnow in fall samples would logically embrace a slightly larger range of lengths (i.e., less than 40.0 mm SL). Favorable ratios for balanced populations are based on long-term stable age class distributions derived from population matrix model projections over 25 years that simulate scenarios that approximate asymptotic population growth ($\lambda \approx 1$). **Index of Spawning Activity –** Rates of capture of downstream-drifting eggs in Moore egg collectors are often employed by managers as an index of silvery minnow spawning. It is possible to standardize many factors that exist to produce variable sampling detection probabilities (e.g., sampling effort, sampling equipment, time, and place of sampling). In theory, it is possible to identify factors that simultaneously influence detection probability of incubating embryos (e.g., water velocity, volumetric measures of river discharge, and volumetric measures of the amount of water filtered to obtain the sample), without affecting animal abundance, and incorporate them as covariates in an analysis of count statistics. To date, sampling protocol for downstream-drifting eggs has not been standardized across varied survey teams.

Presence Absence of Silvery Minnow from Habitat Restoration Sites

A primary goal of fisheries monitoring at HR sites is to determine presence absence of silvery minnow. This goal can be achieved with both gear types used in 2010 and 2011. The capture rates of silvery minnow differ between these two gear types (see SWCA 2011), so only one gear type should be used to achieve the monitoring objective of presence absence of silvery minnow at restoration sites.

Fyke nets are a suitable gear type when spring runoff is anticipated to be at average to above average. During years of high abundance CPUE (fish/hour) can be used to evaluate the efficacy of the various treatment types by comparing catches among sites. Care should be taken when using this type of data with parametric statistical procedures because the data tends to be highly skewed and rarely conforms to the normal distribution. If fyke net soak times are similar among samples then a general linear model using an appropriate distribution (Poisson, negative binomial, etc.) can be used to make comparisons among treatment types to determine if relative abundance for silvery minnow is consistently greater at one or more treatment types.

During years of low abundance, CPUE may not be as useful for determining trends among silvery minnow relative abundance at sites. In low abundance settings beach seines and or fyke net can be used to determine presence absence of silvery minnow from sites. If seine samples are collected, it is not advised to grid out survey locations but instead sample areas where the species is likely to be collected from, using a set number of seine hauls at each site. If fyke nets are used then a minimum of three locations should be set up at each survey location and fyke nets should be monitored multiple times when site inundation occurs. In low abundance settings presence absence data can be used to assess the efficacy of restoration treatments with a general linear model using a binomial distribution. The proportion of samples containing silvery minnow from each of the treatment types could be used as the response variable to assess the efficacy of HR treatments for silvery minnow during years of low abundance.

5.2 SOUTHWESTERN WILLOW FLYCATCHER HABITAT EVALUATION CRITERIA

The following text and tables presenting recommended habitat evaluation criteria for the endangered flycatcher were taken directly from SWCA (2012c:44–47, 54), and wording has been modified only slightly to such that reference to the Sandia Subreach has been replaced with reference to the greater MRG.

HR effectiveness evaluation criteria for the flycatcher are based on the goals of HR for flycatcher habitat and population parameters the recovery criteria presented in the recovery plan for the flycatcher (U.S. Fish and Wildlife Service 2002). The MRG HR goal for the flycatcher is to ***increase the size and stability of the MRG flycatcher population by providing breeding habitat***. Specific goals include:

1) Developing new flycatcher habitat near extant populations by providing and/or increasing the extent, distribution, and quality of nesting habitat close to extant populations (e.g., the Isleta Reach). This will increase the stability of local subpopulations by providing new habitat through:
    a. Replacing habitat in the event of destruction of some habitat elsewhere within the MRG.
    b. Creating new habitat for colonization, which will enhance connectivity between sites once occupied.
2) Providing migratory stopover habitat to enhance dispersal and migration throughout the MRG and Upper Rio Grande.

3) Facilitating the establishment of new, large populations in areas where none exist. Through habitat restoration, new large populations (e.g., >25 territories) would be established in areas where few or no flycatchers exist, but where there is a potential for suitable nesting habitat and population establishment.

HR criteria for the flycatcher include those relative to population parameters, as well as those that represent the physical environment or habitats. The flycatcher is not a year-round resident species along the MRG, and the goals of HR focus on spring, summer, and autumn use of the MRG by flycatchers. Particular emphasis for restoration is to provide suitable nesting habitat for the flycatcher during the spring and early summer months. Much is known about the quantitative attributes of flycatcher nesting habitat. Important habitat parameters of interest for the flycatcher include terrestrial vegetation and soil moisture conditions. Population parameters for the flycatcher range from documenting occurrence by the presence of individuals to documenting habitat use, breeding pairs and nests, and demographic parameters of clutch size, mortality, age class survivorship, etc. The entire population biology and sampling procedures for the flycatcher also differ from the silvery minnow, such that documenting individual birds in particular locations, nesting territories, nests, and numbers of young/nest provide the most useful population evaluation criteria.

The specific suitable flycatcher habitat parameter values have been quantified from the MRG (Moore 2007), as well as from the Lower Colorado River (McLeod et al. 2008). Moore (2007) provides data on vegetation structure around actual flycatcher nests in the MRG, while McLeod et al. (2008) provide vegetation and microclimate data from nest sites and territories along the Lower Colorado River. Principal flycatcher habitat parameters and their measured values from those studies are presented in Table 5.1.

Table 5.1. Flycatcher Habitat Characteristic Variables (Note: this is Table 2.1 in SWCA (2012a).

Vegetation Variables*	Recommended Statistical Range of Variable (mean ± standard error)
Vegetation Height and Density by Canopy Layer	
Upper canopy (>6 m [20 feet]) height (m)	11.98 ± 1.8
Mid-canopy (3–6 m [10–20 feet]) height (m)	8.05 ± 1.56
Shrub canopy (0–3 m) height (m)	2.69 ± 0.77
Upper canopy (>6 m [20 feet]) stem density (/ha)	850 ± 698
Mid-canopy (3–6 m [10–20 feet]) stem density (/ha)	3,079 ± 2,318
Shrub canopy (0–3 m [0–10 feet]) stem density (/ha)	7,470 ± 7,533
Tree Species Density (/ha)	
Goodding's willow	71.5 ± 38.3
Coyote willow	5.1 ± 12.8
Both willow species (Goodding's and coyote)	76.6 ± 38.1
Cottonwood	3.4 ± 9.7
Saltcedar	11.9 ± 26.8
Russian olive	8.1 ± 24.2
Nest Position (No standard error reported)	
Nest height (m)	3.0
Nest substrate height (m)	5.5
Nest substrate DBH (cm)	4.4
Distance to riparian edge (m)	83

Microclimate Variables**	Recommended Statistical Range of Variable (mean ± standard error)
Soil Moisture	
Mean soil moisture (mV), 2005–2007	751.9 ± 15.5
Temperature	
Mean maximum diurnal temperature (°C)	43.0 ± 0.2
Mean diurnal temperature (°C)	31.1 ± 0.1
Mean no. of 15-min. intervals above 41°C (106°F) per day	4.5 ± 0.3
Mean minimum nocturnal temperature (°C)	16.4 ± 0.1
Mean nocturnal temperature (°C)	24.6 ± 0.1
Mean daily temperature range (°C)	19.6 ± 0.2
Humidity	
Mean diurnal relative humidity (%)	53.0 ± 0.6
Mean diurnal vapor pressure (Pa)	2,200.2 ± 26.0
Mean nocturnal relative humidity (%)	64.6 ± 0.5
Mean nocturnal vapor pressure (Pa)	1,964.7 ± 20.6

* Vegetation structure and composition variables from Moore (2007) are based on measurements from nest sites (n = 112).
**Microclimate variables shown in bold are those that are significant predictors of flycatcher nest locations in models combining vegetation and microclimate variables (adapted from McLeod et al. 2008).
Note: DBH = diameter at breast height.
Source: adapted from Moore (2007) and McLeod et al. (2008).

These data provide known quantified attributes of key habitat features for the flycatcher that may be used as evaluation criteria for flycatcher HR effectiveness in the MRG. Vegetation attribute data from Moore (2007) are most appropriate as evaluation criteria for the MRG. Microclimate data (e.g., ambient temperature and relative humidity) are difficult and expensive to measure in appropriate ways to be representative of specific nest site conditions over time. Vegetation structure and soil moisture are the key environmental factors that affect nest site microclimate parameters, and are much easier and less expensive to measure. Therefore, vegetation structure and soil moisture are the parameters recommended to be measured and monitored as flycatcher habitat evaluation criteria, as presented in Table 5.1 above.

Southwestern Willow Flycatcher Population Evaluation Criteria

The flycatcher is a migratory species that will potentially utilize restored MRG habitats as stop-over habitat to feed while migrating and nesting habitat during the breeding season. The primary goal of flycatcher HR is to provide habitat for breeding pairs and establish breeding pairs and successful nests within the MRG. The principal criteria for population-related aspects of the flycatcher within the MRG are the presence of breeding flycatchers and the use of habitat by migratory individuals.

HR success for the MRG flycatcher population may be measured by the presence of breeding pairs, successful nests, and migratory individuals across all restored sites within the subreach. Population evaluation criteria for the flycatcher at specific restoration sites are based on the presence of breeding and migratory individuals and nest success at those restored sites. Any increase from the current absence of flycatchers within the MRG may be considered restoration success. Single site and treatment success will be measured by the presence of flycatchers and nest success at those sites and for the entire subreach by the cumulative presence and average nest success across all restored sites.

Minimum nesting territories are known to be approximately 0.1 ha (0.25 acre) in size, so the establishment of breeding pairs per 0.1 ha (0.25 acre) of restored inundated floodplain habitat within five to 10 years following treatment would be considered success. Since suitable vegetation structure (e.g., Hink and Ohmart structural type 4: intermediate-aged trees with little or no shrubby vegetation [Hink and Ohmart 1984] and exhibit other flycatcher habitat characteristics [Moore 2007; Moore and Ahlers 2008]) will take at least five years to develop enough height and structure, breeding pairs and nests should not be expected in less time following restoration. Moore and Ahlers (2008) have found an average of 2.66 offspring per successful nest elsewhere in the MRG. That same average number of offspring will be used as an initial measure of nest success across restored sites within the Sandia Subreach. Any observations of individual flycatchers utilizing restored habitats during migration will be used as a measure of success within the subreach. Ahlers et al. (2010) found that flycatcher nest distributions in the lower MRG showed an association with Hink and Ohmart vegetation structural types 3, 4, and 5. However, Moore's 2007 findings indicate that structural type 5 trees may be too short for preferred nesting habitats. Therefore, we limit Hink and Ohmart vegetation structural types to 3 and 4 as evaluation criteria, however, type 5 may be appropriate too.

Table 5.2. Rio Grande Silvery Minnow Parameters and Evaluation Criteria Matrix

	Parameter	Criteria	Main Channel Treatments					River-Floodplain Coupling Treatments			Floodplain Vegetation Management				Subreach
			High-flow Ephemeral Channels	Island / Bar Modification	Island / Bar Destabilization	Backwaters / Embayments	Large Woody Debris	Bankline Benches / Terraces	Floodplain Inundation Channel	Removal of Lateral Confinement	Invasive Species Control	Revegetation	Willow Swales	Moist Soil (wetland) Management	
Habitat Factors	**Habitat Heterogeneity**	Availability of shallow, low-velocity habitats over a range of discharges.	+	+	+	+	NA	+	+	+	NA	NA	NA	NA	+
Habitat Factors	**Longitudinal Channel Variability**	Longitudinal spatial sequencing of channel width-to-depth ratio.	+	+	+	+	NA	+	+	+	NA	NA	NA	NA	+
Habitat Factors	**Inundation Threshold**	Inundation of restored habitat features and adjoining floodplain habitat at design discharge or mean mid-May discharge.	+	+	+	+	NA	+	+	+	NA	NA	NA	NA	+
Habitat Factors	**Duration of Inundation**	Duration of inundation of recruitment or nursery habitat sites during the height of silvery minnow spawning.	+	+	+	+	NA	+	+	+	NA	NA	NA	NA	+
Habitat Factors	**Dendritic Drainage of Floodplain Surfaces**	Low-lying depressions are linked to maintain floodplain-river coupling during river recession to effectively reduce the possibility of isolated ephemeral floodplain catchments and stranded fish.	NA	NA	NA	NA	NA	+	+	+	NA	NA	NA	NA	+
Habitat Factors	**Low-flow Minimum Habitat Coverage**	A measure of the spatial distribution and characteristics of suitable silvery minnow habitat patches during extremely low-flow conditions, such as would occur during drought conditions.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	+
Habitat Factors	**Water Temperature**	Evaluation of water temperatures within ranges that are not life threatening to silvery minnow, conducted at the scale of localized habitat features, especially inundated floodplain habitats (Hatch and Gonzales 2010; Mapula et al. in prep).	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA
Habitat Factors	**Dissolved oxygen**	DO ranges from 0.6 to 0.8 mg/L for 24-hour and 96-hour, respectively. Evaluation is conducted at the scale of localized habitat features (Buhl 2006).	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA
Habitat Factors	**Ammonia**	< 16 mg/L as N for 96-hour during spring and summer; < 39 mg/L as N for 96-hour during late summer and fall. Evaluation is conducted at the scale of localized habitat features (Buhl 2006).	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA
Habitat Factors	**Salinity**	< 4.0 ppt during May and June. Evaluation is conducted at the scale of localized habitat features (Cowley et al. 2009).	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA
Habitat Factors	**Mixed Successional Stage Floodplain Vegetation**	Large seasonally inundated habitat patches dominated by riparian herbaceous vegetation (fine-stemmed, low-growing vegetation) intermixed with habitat patches comprised riparian woody species (Hatch and Gonzales 2010).	+	+	NA	+	NA	+	+	+	+	+	+	+	+
Demographic Factors	**CPUE – Index of Abundance**	A time series of population estimates using CPUE. Measures population trends over time within the Sandia Subreach.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	+
Demographic Factors	**CPUE – Index of Active Habitat Selection**	Active selection of restored and natural mesohabitat features by silvery minnow as measured by CPUE.	+	+	+	+	+	+	+	+	NA	NA	NA	NA	+
Demographic Factors	**CPUE – Index of Minimum Required Habitat**	Estimate of the minimum amount of wetted habitat within the Sandia Subreach needed to maintain the population that yields a desired effective population size (Ne).	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	+
Demographic Factors	**Age Class Structure**	Evidence of a weak or missing young-of-year age class in fall collections is indicative of poor recruitment (e.g., weak or missing young-of-year age class) or high adult mortality (e.g., missing advanced age classes). Spring samples should have no more than one missing age class for age classes I–IV within the Sandia Subreach.	+	+	+	+	+	+	+	+	NA	NA	NA	NA	+
Demographic Factors	**Young-adult Ratio**	An estimate of the ratio of silvery minnow young to adult using an age-length key in which the probabilities of ages within discrete length classes are used to convert numbers at length into numbers at age.	+	+	+	+	+	+	+	+	NA	NA	NA	NA	+
Demographic Factors	**Index of Spawning Activity**	Presence of silvery minnow eggs and fish larvae in mesohabitat features or in river channel.	+	+	+	+	+	+	+	+	NA	NA	NA	NA	+

Table 5.3 Southwestern Willow Flycatcher Parameters and Evaluation Criteria Matrix

	Parameter	Criteria	Main Channel Treatments					River-Floodplain Coupling Treatments			Floodplain Management				Subreach
			High-flow Ephemeral Channels	Island / Bar Modification	Island / Bar Destabilization	Backwaters / Embayments	Large Woody Debris	Bankline Benches / Terraces	Floodplain Inundation Channel	Removal of Lateral Confinement	Invasive Species Control	Revegetation	Willow Swales	Wetland Management	
Habitat Factors	**Seasonally Inundated Floodplain Habitat Patch** (soil moisture)	Greater wet soil surface area and saturation level over time.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Habitat Factors	**Temporal Criteria for Willow Establishment**	Temporal criteria for willow establishment across the Sandia Subreach must follow the timing of each individual HR treatment, but with a three- to five-year lag time for the trees to become established and grow to size.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Habitat Factors	**Tree Species Composition**	Dense stands of native willow trees/shrubs, dominated by Goodding's willow and coyote willow.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Habitat Factors	**Vegetation Structure**	H&O classification/area, with dominant tree species classified as type 4 or 3, Goodding's willow, coyote willow, cottonwood..	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Habitat Factors	**Tree Stem Counts**	More Goodding's willows and cottonwoods, size classes 2 and 3 (Moore 2007).	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Habitat Factors	**Shrub Stem Counts**	More native shrubs, size class 1 (Moore 2007).	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Habitat Factors	**Tree/Shrub Canopy Densities by Layer Height**	Stem counts (Moore 2007) 7,000 stems/ha layer 1, 3,000 stems/ha layer 2, 850 stems/ha layer 3; >0.1ha at each site.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Habitat Factors	**Tree/Shrub Canopy Cover by Layer Height**	Tree/shrub canopy cover by layer height (shrub [0–3 m], lower [3–6 m], upper [>6 m]): canopy cover (Moore 2007) >28% layer 1, >30% layer 2, >20% layer 3, >0.1 ha at each site.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Habitat Factors	**Tree Visual Foliage Density at Different Height Classes.**	Spherical densiometer, hit counts: increase over time, especially in mid-canopy layer after five years, but no reference or hypothetical densiometer values at this time.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Habitat Factors	**Ground Cover as Herbaceous Vegetation**	Ground cover as herbaceous vegetation (<50 cm height); forbs, grasses, rushes, leaf litter, bare ground (soil/sand/rock): >Herbaceous cover and leaf litter <bare ground, at each treatment site.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Demo-graphic Factors	**Established Breeding Pairs**	Establish at least one breeding pair in restored suitable inundated floodplain habitat of at least 0.1 ha within five to 10 years following restoration.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Demo-graphic Factors	**Nest Success**	Once breeding pairs have become established at a site, those pairs should produce an average of 2.66 offspring per year (Moore and Ahlers 2008) per restoration site.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+
Demo-graphic Factors	**Migrating Individuals**	Presence of migratory flycatchers utilizing riparian habitats/treatments within the Sandia Subreach.	+	+	NA	+	NA	+	+	+	NA	+	+	?	+

? = depends on project goals and objectives.
The Hink and Ohmart (H&O) classification recognizes six structural classes of riparian wetland vegetation (plus open water) in the MRG. Type 3 consists of intermediate-aged trees with dense shrubby vegetation. Type 4 is characterized by intermediate-aged trees with little or no shrubby vegetation.
Moore's (2007) size classes are based on DBH measurements. Class I: 5–10 cm (2–4 inches); Class II: 10–20 cm (4–8 inches); Class III: > 20 cm (> 8 inches)

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APPENDIX 1
FYKE NET DATA COLLECTED IN 2010 AND SUMMARIZED FOR THIS REPORT

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Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/10/2010	Central WW	8	1		Wick, Kopitch, Porter	3.3	HYBAMA	73	1
5/10/2010	Central WW	8	1		Wick, Kopitch, Porter	3.3	HYBAMA	84	1
5/10/2010	Central WW	8	1		Wick, Kopitch, Porter	3.3	HYBAMA	69	1
5/10/2010	Central WW	8	1		Wick, Kopitch, Porter	3.3	HYBAMA	76	1
5/10/2010	Central WW	8	1		Wick, Kopitch, Porter	3.3	HYBAMA	70	1
5/10/2010	Central WW	8	1		Wick, Kopitch, Porter	3.3	HYBAMA	74	1
5/10/2010	Central WW	8	1		Wick, Kopitch, Porter	3.3	HYBAMA	79	1
5/10/2010	Central WW	8	1		Wick, Kopitch, Porter	3.3	HYBAMA	76	1
5/10/2010	Central WW	8	1		Wick, Kopitch, Porter	3.3	HYBAMA	73	1
5/10/2010	Central WW	8	2		Wick, Kopitch, Porter	3.3	HYBAMA		121
5/10/2010	Central WW	8	2		Wick, Kopitch, Porter	3.3	HYBAMA	70	1
5/10/2010	Central WW	8	2		Wick, Kopitch, Porter	3.3	HYBAMA	70	1
5/10/2010	Central WW	8	2		Wick, Kopitch, Porter	3.3	HYBAMA	78	1
5/10/2010	Central WW	8	2		Wick, Kopitch, Porter	3.3	HYBAMA	85	1
5/10/2010	Central WW	8	2		Wick, Kopitch, Porter	3.3	HYBAMA	80	1
5/10/2010	Central WW	8	2		Wick, Kopitch, Porter	3.3	HYBAMA		160
5/10/2010	I-40 3i	7			Porter, Kopitch	n/a	no net set		0
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	57	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	56	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	60	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	65	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	60	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	54	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	47	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	52	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	67	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	57	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	59	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	54	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	60	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	56	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	52	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	56	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	56	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	54	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	58	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	65	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	49	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	52	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	57	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	53	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	56	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	62	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	64	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	59	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	64	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	53	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	47	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	64	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	75	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	46	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	61	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	53	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	57	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	53	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	46	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	49	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	56	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	54	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	61	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	56	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	47	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	52	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	52	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	53	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	66	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	58	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	59	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	54	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	56	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	68	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	56	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	62	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	65	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	60	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	60	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	46	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	54	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	68	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	45	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	68	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	59	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	47	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	57	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	54	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	65	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	44	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	59	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	52	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	48	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	63	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	72	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	59	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	46	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	52	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	47	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	49	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	42	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	49	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	53	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	61	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	49	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	49	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	60	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	58	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	44	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	66	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	54	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	53	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	52	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	60	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	47	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	52	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	54	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	53	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	66	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	53	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	49	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	50	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	49	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	48	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	55	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	HYBAMA	51	1
5/11/2010	Los Lunas	15	1		Beck, Reale, Grosso	2.67	PLAGRA	41	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	53	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	56	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	51	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	60	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	49	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	51	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	47	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	50	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	56	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	45	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	53	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	51	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	55	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	57	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	50	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	49	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	57	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	56	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	59	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	47	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	52	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	52	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	29	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	56	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	51	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	55	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	48	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	47	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	51	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	47	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	55	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	55	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	57	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	53	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	63	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	52	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	70	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	62	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	53	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	52	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	50	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	48	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	57	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	49	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	58	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	51	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	60	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	57	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	59	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	47	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	56	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	52	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	50	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	58	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	46	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	50	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	53	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	53	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	58	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	60	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	55	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	48	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	49	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	55	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	60	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	49	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	54	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	53	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	45	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	56	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	58	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	56	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	51	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	47	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	51	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	45	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	50	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	48	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	49	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	49	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	47	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	52	1
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	52	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/11/2010	Los Lunas	15	2		Beck, Reale, Grosso	3	HYBAMA	53	1
5/12/2010	NDC	1	1		Grosso, Garcia, Porter	3.17	HYBAMA	52	1
5/12/2010	NDC	1	1		Grosso, Garcia, Porter	3.17	HYBAMA	48	1
5/12/2010	NDC	1	1		Grosso, Garcia, Porter	3.17	HYBAMA	51	1
5/12/2010	NDC	1	1		Grosso, Garcia, Porter	3.17	HYBAMA	49	1
5/12/2010	NDC	1	2		Grosso, Garcia, Porter	3.17	HYBAMA	80	1
5/12/2010	NDC	1	2		Grosso, Garcia, Porter	3.17	HYBAMA	52	1
5/12/2010	NDC	1	2		Grosso, Garcia, Porter	3.17	HYBAMA	72	1
5/12/2010	NDC	1	2		Grosso, Garcia, Porter	3.17	HYBAMA	54	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	64	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	59	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	56	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	48	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	59	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	54	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	61	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	58	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	60	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	62	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	48	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	50	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	61	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	59	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	55	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	46	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	56	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	50	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	52	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	49	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	56	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	57	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	42	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	49	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	52	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	56	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	68	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	53	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	48	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	56	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	48	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	52	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	54	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	56	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	48	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	45	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	58	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	44	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	59	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	52	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	53	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	47	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	52	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	48	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	49	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	52	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	59	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	52	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	45	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	51	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA	45	1
5/12/2010	RGNC	6	1	Inlet 2	Grosso, Garcia, Porter		HYBAMA		1
5/12/2010	RGNC	6	2	Inlet 3	Grosso, Garcia, Porter		PIMPRO	51	1
5/12/2010	RGNC	6	2	Inlet 3	Grosso, Garcia, Porter		HYBAMA	52	1
5/12/2010	RGNC	6	2	Inlet 3	Grosso, Garcia, Porter		CYPLUT	56	1
5/12/2010	RGNC	6	2	Inlet 3	Grosso, Garcia, Porter		CYPLUT	46	1
5/13/2010	Harrison	11	1		Beck, Garcia, Reale	3	HYBAMA	48	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	48	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	87	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	62	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	50	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	58	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	52	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	51	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	59	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	56	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	57	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	50	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	HYBAMA	56	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.75	CYPLUT		3
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.92	HYBAMA	51	1
5/13/2010	Harrison	11	2		Beck, Garcia, Reale	2.92	HYBAMA	54	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	76	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	53	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	55	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	58	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	65	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	72	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	60	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	54	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	53	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	52	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	62	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	70	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	52	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	65	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	61	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	62	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	65	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	50	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	65	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	51	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	55	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	55	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	58	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA	57	1
5/20/2010	Central WW	8	1		Beck, Hummel, MichMann	4	HYBAMA		87
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	61	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	65	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	57	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	55	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	82	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	79	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	76	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	65	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	62	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	48	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	50	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	80	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	65	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	55	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	66	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	82	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	58	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	50	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	54	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA	81	1
5/20/2010	Central WW	8	2		Beck, Hummel, MichMann	4	HYBAMA		125
5/20/2010	NDC	1	1		Porter, Price	3.67	HYBAMA	72	1
5/20/2010	NDC	1	1		Porter, Price	3.67	HYBAMA	73	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/20/2010	NDC	1	1		Porter, Price	3.67	HYBAMA	49	1
5/20/2010	NDC	1	2		Porter, Price	3.5	HYBAMA	61	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	48	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	46	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	48	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	60	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	53	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	50	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	53	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	48	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	53	1
5/20/2010	RGNC	6	1	Inlet 2	Porter, Price	3.25	HYBAMA	82	1
5/20/2010	RGNC	6	2	Inlet 3	Porter, Price	3	HYBAMA	58	1
5/20/2010	RGNC	6	2	Inlet 3	Porter, Price	3	HYBAMA	44	1
5/20/2010	RGNC	6	2	Inlet 3	Porter, Price	3	CYPLUT	39	1
5/20/2010	RGNC	6	2	Inlet 3	Porter, Price	3	CYPLUT	56	1
5/20/2010	RGNC	6	2	Inlet 3	Porter, Price	3	PIMPRO	61	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	50	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	47	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	61	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	62	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	79	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	47	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	62	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	64	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	45	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	50	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	50	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	CYPLUT		1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	GAMAFF		1
5/20/2010	Route 66	Gonzales BW	2		Beck, Hummel, MichMann	3	HYBAMA	51	1
5/20/2010	Route 66	Gonzales BW	2		Beck, Hummel, MichMann	3	HYBAMA	50	1
5/20/2010	Route 66	Gonzales BW	2		Beck, Hummel, MichMann	3	CYPLUT		1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	54	1
5/20/2010	Route 66	Gonzales BW	1		Beck, Hummel, MichMann	3.5	HYBAMA	55	1
5/21/2010	Harrison	11	1		Beck, Wick	2.75	HYBAMA	60	1
5/21/2010	Harrison	11	2		Beck, Wick	2.5	HYBAMA	91	1
5/21/2010	Harrison	11	2		Beck, Wick	2.5	HYBAMA	55	1
5/21/2010	Harrison	11	2		Beck, Wick	2.5	HYBAMA	56	1
5/21/2010	Harrison	11	2		Beck, Wick	2.5	HYBAMA	65	1
5/21/2010	Harrison	11	2		Beck, Wick	2.5	HYBAMA	50	1
5/21/2010	Harrison	11	2		Beck, Wick	2.5	HYBAMA	61	1
5/21/2010	Harrison	11	2		Beck, Wick	2.5	HYBAMA	60	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/21/2010	Harrison	11	2		Beck, Wick	2.5	HYBAMA	48	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	82	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	50	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	52	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	57	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	63	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	59	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	51	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	52	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	58	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	68	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	59	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	70	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	53	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	54	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	60	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	60	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	53	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	57	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	79	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	56	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	54	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	50	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	52	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	74	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	57	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	50	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	53	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	46	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	54	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	67	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	64	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	53	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	53	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	59	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	57	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	52	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	53	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	50	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	58	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	65	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	57	1
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA	53	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/21/2010	Los Lunas	15	1		Porter, Hummel, Reale	4	HYBAMA		40
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	54	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	57	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	42	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	61	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	57	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	60	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	56	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	58	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	57	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	56	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	60	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	61	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	56	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	60	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	61	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	54	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	56	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	48	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	66	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	71	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	62	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	64	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	58	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	46	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	58	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	65	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	45	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	58	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	57	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	58	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	63	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	65	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	60	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	52	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	60	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	75	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	56	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	54	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	57	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	74	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	57	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	61	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	54	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	51	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	68	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	58	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	51	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	52	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	62	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	50	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	58	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	54	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	72	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	64	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	50	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	55	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	44	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	52	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	48	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	51	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	56	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	58	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	54	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	45	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	50	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	63	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	48	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	57	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	56	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	55	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	49	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	54	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	63	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	69	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	48	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	64	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	52	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	55	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	48	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	49	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	47	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	59	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	52	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	46	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	52	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	50	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	50	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	49	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	55	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	58	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	48	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	54	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	52	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	50	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	52	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	50	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	45	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	52	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	57	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	54	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	55	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	53	1
5/21/2010	Los Lunas	15	2		Porter, Hummel, Reale	3.5	HYBAMA	51	1
5/22/2010	Central NE	9	1		Porter, Mann, Z	3	HYBAMA	69	1
5/22/2010	Central NE	9	1		Porter, Mann, Z	3	HYBAMA	58	1
5/22/2010	Central NE	9	1		Porter, Mann, Z	3	HYBAMA	56	1
5/22/2010	Central NE	9	1		Porter, Mann, Z	3	HYBAMA	61	1
5/22/2010	Central NE	9	1		Porter, Mann, Z	3	HYBAMA	50	1
5/22/2010	Central NE	9	1		Porter, Mann, Z	3	HYBAMA	64	1
5/22/2010	Central NE	9	1		Porter, Mann, Z	3	HYBAMA	59	1
5/22/2010	Central NE	9	1		Porter, Mann, Z	3	HYBAMA	61	1
5/22/2010	Central NE	9	1		Porter, Mann, Z	3	HYBAMA	53	1
5/22/2010	Central NE	9	2		Porter, Mann, Z	3	HYBAMA	48	1
5/22/2010	Central NE	9	2		Porter, Mann, Z	3	HYBAMA	62	1
5/22/2010	Central NE	9	2		Porter, Mann, Z	3	HYBAMA	64	1
5/22/2010	Central NE	9	2		Porter, Mann, Z	3	HYBAMA	50	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/22/2010	Tingley	10	1		Porter, Mann, Z	3	LEPCYA	82	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	57	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	86	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	79	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	49	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	61	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	64	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	62	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	53	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	58	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	60	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	60	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	49	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	57	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	83	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	62	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	65	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	65	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	52	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	64	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	72	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	50	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	61	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	54	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	54	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	59	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	HYBAMA	52	1
5/22/2010	Tingley	10	2		Porter, Mann, Z	3	CYPLUT	34	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	49	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	52	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	56	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	57	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	48	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	51	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	55	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	52	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	61	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	56	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	51	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	41	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	75	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	47	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	62	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	48	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	73	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	52	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	51	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	52	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	59	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	49	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	74	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	55	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	58	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	54	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	49	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	48	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	45	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	54	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	47	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	44	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	55	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	68	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	49	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	54	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	49	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	46	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	52	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	54	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	52	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	61	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	49	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	64	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	57	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	53	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	47	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	52	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	42	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	45	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	45	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	50	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	52	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	46	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	HYBAMA	50	1
5/23/2010	Los Lunas	15	1		Beck, Reale	4.5	CYPLUT		1
5/23/2010	Los Lunas	15	2		Beck, Reale	3	HYBAMA	54	1
5/23/2010	Los Lunas	15	2		Beck, Reale	3	HYBAMA	74	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/23/2010	Los Lunas	15	2		Beck, Reale	3	HYBAMA	43	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	61	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	50	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	46	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	48	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	65	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	41	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	49	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	52	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	50	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	42	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	53	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	43	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	49	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	43	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	49	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	41	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	53	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	51	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	54	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	53	1
5/23/2010	Los Lunas	15	3		Beck, Reale	1.25	HYBAMA	51	1
5/24/2010	Central WW	8	2		Beck, Reale, Wick	3.16	HYBAMA	57	1
5/24/2010	Central WW	8	2		Beck, Reale, Wick	3.16	HYBAMA	58	1
5/24/2010	Central WW	8	2		Beck, Reale, Wick	3.16	HYBAMA	45	1
5/24/2010	Central WW	8	2		Beck, Reale, Wick	3.16	HYBAMA	45	1
5/24/2010	Central WW	8	1		Beck, Reale, Wick	3.5	HYBAMA	47	1
5/24/2010	Central WW	8	1		Beck, Reale, Wick	3.5	HYBAMA	53	1
5/24/2010	RGNC	6	1	Inlet 2	Beck, Reale, Wick	3.25	PIMPRO	57	1
5/24/2010	RGNC	6	1	Inlet 2	Beck, Reale, Wick	3.25	HYBAMA	66	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	PIMPRO	55	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	CYPLUT		6
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	54	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	44	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	46	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	44	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	43	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	51	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	42	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	62	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	42	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	50	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	48	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	45	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	46	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	41	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	40	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	43	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	42	1
5/24/2010	RGNC	6	2	Inlet 3	Beck, Reale, Wick	3.16	HYBAMA	45	1
5/25/2010	Route 66		1	Gonzales BW	Beck, Reale	3.83	LEPCYA	55	1
5/25/2010	Route 66		1	Gonzales BW	Beck, Reale	3.83	LEPCYA	60	1
5/25/2010	Route 66		1	Gonzales BW	Beck, Reale	3.83	LEPCYA	72	1
5/25/2010	Route 66		1	Gonzales BW	Beck, Reale	3.83	HYBAMA	56	1
5/25/2010	Route 66		1	Gonzales BW	Beck, Reale	3.83	HYBAMA	78	1
5/25/2010	Route 66		2	Big Swale	Beck, Reale	3.5			0
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	81	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	72	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	62	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	55	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	70	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	55	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	58	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	67	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	78	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	93	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	79	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	74	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	79	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	77	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	71	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA	68	1
5/26/2010	Los Lunas	15	1		Porter, Beck, Reale	3.3	HYBAMA		163
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	57	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	55	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	45	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	46	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	55	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	46	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	53	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	53	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	61	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	55	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	HYBAMA	54	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	CYPLUT	32	1
5/26/2010	Los Lunas	15	2		Porter, Beck, Reale	3.5	CYPCAR	28	1

Date	Site Name	Site Number	Net Number	Add'l Site Info	Personnel	Net Run Time (hrs)	Species	Standard Length (mm)	Count
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	HYBAMA	57	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	HYBAMA	50	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	HYBAMA	47	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	HYBAMA	65	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	HYBAMA	45	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	HYBAMA	61	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	HYBAMA	45	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	CYPLUT	42	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	CYPLUT	55	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	CYPLUT	45	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	CYPLUT	45	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	CYPLUT	47	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	CYPLUT	42	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	CYPLUT	41	1
5/27/2010	Harrison	11	1		Beck, Wyman, Galloway	3.16	CYPLUT	45	1
5/27/2010	Harrison	11	2		Beck, Wyman, Galloway	3	HYBAMA	55	1
5/27/2010	Harrison	11	2		Beck, Wyman, Galloway	3	HYBAMA	51	1
5/27/2010	Harrison	11	2		Beck, Wyman, Galloway	3	HYBAMA	85	1
5/27/2010	Harrison	11	2		Beck, Wyman, Galloway	3	HYBAMA	55	1
5/27/2010	Harrison	11	2		Beck, Wyman, Galloway	3	HYBAMA	65	1
5/27/2010	Harrison	11	2		Beck, Wyman, Galloway	3	HYBAMA	54	1
5/27/2010	Harrison	11	2		Beck, Wyman, Galloway	3	HYBAMA	56	1
5/28/2010	Central NE	9	1		Beck, Reale, Terina Perez, Kim	2.5	HYBAMA	61	1
5/28/2010	Tingley	10	1		Beck, Reale, Terina Perez, Kim	2.5	CYPCAR		1
5/28/2010	Tingley	10	1		Beck, Reale, Terina Perez, Kim	2.5	GAMAFF		1
5/28/2010	Tingley	10	1		Beck, Reale, Terina Perez, Kim	2.5	Bullfrog		1

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APPENDIX 2
FISHERIES DATA COLLECTED IN 2011
AND SUMMARIZED FOR THIS REPORT

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Site Name	Date	Sample	Species	Count	Gear
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	1	Seine
Willie Chavez	4/27/2011	1	CYPLUT	16	Seine
Willie Chavez	4/27/2011	2	CYPLUT	1	Seine
Willie Chavez	4/27/2011	2	CYPLUT	1	Seine
Willie Chavez	4/27/2011	2	CYPLUT	1	Seine
Willie Chavez	4/27/2011	2	CYPLUT	1	Seine
Willie Chavez	4/27/2011	3	CYPLUT	1	Seine
Willie Chavez	4/27/2011	3	CYPLUT	1	Seine
Willie Chavez	4/27/2011	3	CYPLUT	1	Seine
Willie Chavez	4/27/2011	3	CYPLUT	1	Seine
Willie Chavez	4/27/2011	3	CYPLUT	1	Seine
Willie Chavez	4/27/2011	3	CYPLUT	1	Seine
Willie Chavez	4/27/2011	3	CYPLUT	1	Seine
Willie Chavez	4/27/2011	3	CYPLUT	1	Seine
Willie Chavez	4/27/2011	3	CYPLUT	1	Seine
Willie Chavez	4/27/2011	4	CYPLUT	1	Seine
Willie Chavez	4/27/2011	4	CYPLUT	1	Seine
Willie Chavez	4/27/2011	4	CYPLUT	1	Seine
Willie Chavez	4/27/2011	4	CYPLUT	1	Seine
Willie Chavez	4/27/2011	4	CYPLUT	1	Seine
Willie Chavez	4/27/2011	4	CYPLUT	1	Seine
Willie Chavez	4/27/2011	4	CYPLUT	1	Seine
Willie Chavez	4/27/2011	4	CYPLUT	1	Seine
Willie Chavez	4/27/2011	4	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	GAMAFF	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	1	Seine
Willie Chavez	4/27/2011	5	CYPLUT	9	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	1	Seine
Willie Chavez	4/27/2011	6	CYPLUT	3	Seine
Willie Chavez	4/27/2011	6	GAMAFF	1	Seine
FE06	4/27/2011	1	CYPLUT	1	Seine
FE06	4/27/2011	1	CYPLUT	1	Seine
FE06	4/27/2011	1	CYPLUT	1	Seine
FE06	4/27/2011	1	CYPLUT	1	Seine
FE06	4/27/2011	1	CYPLUT	1	Seine

Site Name	Date	Sample	Species	Count	Gear
FE06	4/27/2011	1	CYPLUT	1	Seine
FE06	4/27/2011	1	CYPLUT	1	Seine
FE06	4/27/2011	1	CYPLUT	1	Seine
FE06	4/27/2011	1	CYPLUT	1	Seine
FE06	4/27/2011	1	RAYCAT	1	Seine
FE06	4/27/2011	1	CYPLUT	1	Seine
FE06	4/27/2011	1	CYPLUT	2	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	2	CYPLUT	1	Seine
FE06	4/27/2011	3	CARCAR	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	PIMPRO	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	3	CYPLUT	1	Seine
FE06	4/27/2011	4	CYPLUT	1	Seine
FE06	4/27/2011	4	CYPLUT	1	Seine
FE06	4/27/2011	4	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	5	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	1	Seine
FE06	4/27/2011	6	CYPLUT	10	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine

Site Name	Date	Sample	Species	Count	Gear
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
FE06	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	1	NO FISH	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	1	Seine
LP2 10-13	4/27/2011	2	CYPLUT	15	Seine
LP2 10-13	4/27/2011	2	RHICAT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	29	Seine
LP2 10-13	4/27/2011	3	ICTPUN	1	Seine
LP2 10-13	4/27/2011	3	GAMAFF	1	Seine
LP2 10-13	4/27/2011	3	CYPLUT	100	Seine
LP2 10-13	4/27/2011	3	CYPLUT	32	Seine
LP2 10-13	4/27/2011	3	CYPLUT	44	Seine
LP2 10-13	4/27/2011	3	UNK LARVA	1	Seine
LP2 10-13	4/27/2011	4	PIMPRO	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	PIMPRO	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	23	Seine
LP2 10-13	4/27/2011	4	CYPLUT	33	Seine
LP2 10-13	4/27/2011	4	PIMPRO	1	Seine
LP2 10-13	4/27/2011	4	CYPLUT	21	Seine
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine
LP2 10-13	4/27/2011	5	PIMPRO	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine

Site Name	Date	Sample	Species	Count	Gear
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	46	Seine
LP2 10-13	4/27/2011	5	PIMPRO	1	Seine
LP2 10-13	4/27/2011	5	CYPLUT	10	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	1	Seine
LP2 10-13	4/27/2011	6	RHICAT	1	Seine
LP2 10-13	4/27/2011	6	CYPLUT	9	Seine
LP2 10-13	4/27/2011	7	GAMAFF	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	GAMAFF	1	Seine
LP2 10-13	4/27/2011	7	GAMAFF	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	UNK LARVA	7	Seine
LP2 10-13	4/27/2011	7	GAMAFF	1	Seine
LP2 10-13	4/27/2011	7	GAMAFF	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	UNK LARVA	80	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	1	Seine
LP2 10-13	4/27/2011	7	CYPLUT	8	Seine
LP2 10-13	4/27/2011	7	GAMAFF	1	Seine
BEL 5	4/27/2011	1	PIMPRO	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	GAMAFF	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	CYPLUT	1	Seine
BEL 5	4/27/2011	1	CYPLUT	31	Seine
BEL 5	4/27/2011	1	GAMAFF	1	Seine
BEL 5	4/27/2011	1	GAMAFF	1	Seine
BEL 5	4/27/2011	1	UNK LARVA	1	Seine
BEL 5	4/27/2011	2	CYPLUT	1	Seine
BEL 5	4/27/2011	2	CYPLUT	1	Seine
BEL 5	4/27/2011	2	CYPLUT	1	Seine
BEL 5	4/27/2011	3	CYPLUT	1	Seine
BEL 5	4/27/2011	3	CYPLUT	1	Seine
BEL 5	4/27/2011	3	CYPLUT	1	Seine
BEL 5	4/27/2011	3	CYPLUT	1	Seine
BEL 5	4/27/2011	4			Seine
BEL 5	4/27/2011	5	CYPLUT	1	Seine

Site Name	Date	Sample	Species	Count	Gear
BEL 5	4/27/2011	5	CYPLUT	1	Seine
BEL 5	4/27/2011	5	CYPLUT	1	Seine
BEL 5	4/27/2011	5	CYPLUT	1	Seine
BEL 5	4/27/2011	5	CYPLUT	1	Seine
BEL 5	4/27/2011	5	CYPLUT	1	Seine
BEL 5	4/27/2011	5	CYPLUT	1	Seine
BEL 5	4/27/2011	6	UNK LARVA	25	Seine
BEL 5	4/27/2011	6	CYPLUT	1	Seine
RGNC	4/29/2011	1	CYPLUT	1	Seine
RGNC	4/29/2011	1	RHICAT	1	Seine
RGNC	4/29/2011	1	CYPLUT	1	Seine
RGNC	4/29/2011	1	PLAGRA	1	Seine
RGNC	4/29/2011	1	CYPLUT	1	Seine
RGNC	4/29/2011	1	CYPLUT	1	Seine
RGNC	4/29/2011	2	PLAGRA	1	Seine
RGNC	4/29/2011	2	PLAGRA	1	Seine
RGNC	4/29/2011	2	PLAGRA	1	Seine
RGNC	4/29/2011	2	PLAGRA	1	Seine
RGNC	4/29/2011	2	PLAGRA	1	Seine
RGNC	4/29/2011	2	PLAGRA	1	Seine
RGNC	4/29/2011	3	PLAGRA	1	Seine
RGNC	4/29/2011	3	PLAGRA	1	Seine
RGNC	4/29/2011	3	CYPLUT	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	CYPLUT	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	PLAGRA	1	Seine
RGNC	4/29/2011	4	RHICAT	1	Seine
RGNC	4/29/2011	4	CYPLUT	16	Seine
RGNC	4/29/2011	5	NO FISH	0	Seine
CENTRAL NE I40 2B	4/29/2011	1	ICTPUN	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	PLAGRA	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	PLAGRA	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	1	CYPLUT	5	Seine
CENTRAL NE I40 2B	4/29/2011	2	CATCOM	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	PLAGRA	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CATCOM	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CATCOM	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	PLAGRA	1	Seine

Site Name	Date	Sample	Species	Count	Gear
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	PLAGRA	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	PLAGRA	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	PLAGRA	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	PLAGRA	1	Seine
CENTRAL NE I40 2B	4/29/2011	2	CYPLUT	32	Seine
CENTRAL NE I40 2B	4/29/2011	3	PLAGRA	1	Seine
CENTRAL NE I40 2B	4/29/2011	3	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	3	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	3	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	3	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	3	PLAGRA	1	Seine
CENTRAL NE I40 2B	4/29/2011	3	PIMPRO	1	Seine
CENTRAL NE I40 2B	4/29/2011	3	UNK LARVA	1	Seine
CENTRAL NE I40 2B	4/29/2011	3	CATCOM	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	ICTPUN	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	CYPLUT	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	HYBAMA	1	Seine
CENTRAL NE I40 2B	4/29/2011	4	RHICAT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	PLAGRA	1	Seine
TINGLEY BAR	4/29/2011	1	GAMAFF	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	1	CYPLUT	12	Seine
TINGLEY BAR	4/29/2011	2	PLAGRA	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	PLAGRA	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	2	CYPLUT	17	Seine
TINGLEY BAR	4/29/2011	2	RHICAT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine

Site Name	Date	Sample	Species	Count	Gear
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	3	CYPLUT	73	Seine
TINGLEY BAR	4/29/2011	3	PLAGRA	1	Seine
TINGLEY BAR	4/29/2011	3	PLAGRA	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	1	Seine
TINGLEY BAR	4/29/2011	4	CYPLUT	3	Seine
PDN9i	4/28/2011	1	CYPLUT	1	Seine
PDN9i	4/28/2011	1	CYPLUT	1	Seine
PDN9i	4/28/2011	1	CYPLUT	1	Seine
PDN9i	4/28/2011	1	CYPLUT	1	Seine
PDN9i	4/28/2011	1	PIMPRO	1	Seine
PDN9i	4/28/2011	1	CYPLUT	1	Seine
PDN9i	4/28/2011	1	CYPLUT	1	Seine
PDN9i	4/28/2011	1	CYPLUT	1	Seine
PDN9i	4/28/2011	1	CYPLUT	1	Seine
PDN9i	4/28/2011	1	CYPLUT	7	Seine
PDN9i	4/28/2011	2	CYPLUT	1	Seine
PDN9i	4/28/2011	2	CYPLUT	1	Seine
PDN9i	4/28/2011	2	PIMPRO	1	Seine
PDN9i	4/28/2011	3	PLAGRA	1	Seine
PDN9i	4/28/2011	3	PLAGRA	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	1	Seine
PDN9i	4/28/2011	4	RHICAT	1	Seine
PDN9i	4/28/2011	4	CYPLUT	5	Seine
PDN9i	4/28/2011	4	RHICAT	3	Seine
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	HYBAMA	1	Fyke

Site Name	Date	Sample	Species	Count	Gear
PDN9i	4/28/2011	5	PIMPRO	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	HYBAMA	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	PIMPRO	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	1	Fyke
PDN9i	4/28/2011	5	CYPLUT	11	Fyke
PDN9i	4/28/2011	5	PIMPRO	1	Fyke
PDN7i	4/28/2011	1	RHICAT	1	Seine
PDN7i	4/28/2011	1	RHICAT	1	Seine
PDN7i	4/28/2011	1	RHICAT	1	Seine
PDN7i	4/28/2011	1	RHICAT	1	Seine
PDN7i	4/28/2011	1	CYPLUT	25	Seine
PDN7i	4/28/2011	2	no fish	no fish	Seine
PDN7i	4/28/2011	3	HYBAMA	1	Seine
PDN7i	4/28/2011	3	HYBAMA	1	Seine
PDN7i	4/28/2011	3	HYBAMA	1	Seine
PDN7i	4/28/2011	3	HYBAMA	1	Seine
PDN7i	4/28/2011	4	HYBAMA	1	Seine
PDN7i	4/28/2011	4	HYBAMA	1	Seine
PDN7i	4/28/2011	4	HYBAMA	1	Seine
PDN7i	4/28/2011	4	HYBAMA	1	Seine
PDN7i	4/28/2011	4	HYBAMA	1	Seine
PDN7i	4/28/2011	4	RHICAT	1	Seine
PDN7i	4/28/2011	5	HYBAMA	1	Seine
PDN7i	4/28/2011	5	HYBAMA	1	Seine
PDN7i	4/28/2011	5	CYPLUT	1	Seine
PDN7i	4/28/2011	5	CYPLUT	1	Seine
PDN7i	4/28/2011	5	CYPLUT	1	Seine
PDN7i	4/28/2011	5	CYPLUT	1	Seine
PDN7i	4/28/2011	5	CYPLUT	1	Seine
PDN7i	4/28/2011	5	RHICAT	1	Seine
PDN7i	4/28/2011	5	RHICAT	1	Seine

APPENDIX 3
VEGETATION DATA ENTERED FROM FIELD DATA FORMS AND USED FOR ANALYSES

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Table 1. Total Ground Cover Data (periods in cells denote no data collected)

MPT Site #	Site Name	Polygon	P-code	YEAR	Sparse	Dense	Bare
1	NDC 1 ch	1	1-NDC 1 ch-1	2010	70	0	30
2	PDN-7i	1	2-PDN-7i-1	2010	25	75	0
3	PDN 9i	1	3-PDN 9i-1	2010	50	0	50
3	PDN 9i	2	3-PDN 9i-2	2010	0	100	0
3	PDN 9i	3	3-PDN 9i-3	2010	30	70	0
3	PDN 9i	4	3-PDN 9i-4	2010	0	0	100
4	PDN 11i	1	4-PDN 11i-1	2010	5	95	0
4	PDN 11i	2	4-PDN 11i-2	2010	50	50	0
5	PDN 13i	1	5-PDN 13i-1	2010	90	0	10
5	PDN 13i	2	5-PDN 13i-2	2010	85	10	5
6	RGNC	1	6-RGNC-1	2010	20	10	70
6	RGNC	2	6-RGNC-2	2010	20	0	80
6	RGNC	3	6-RGNC-3	2010	20	0	80
6	RGNC	4	6-RGNC-4	2010	0	20	80
6	RGNC	5	6-RGNC-5	2010	40	20	40
6	RGNC	6	6-RGNC-6	2010	20	30	50
10	I-40 4b	1	10-I-40 4b-1	2010	5	95	0
10	I-40 4b	2	10-I-40 4b-2	2010	20	70	10
10	I-40 4b	3	10-I-40 4b-3	2010	15	80	5
11	COA1	1	11-COA1-1	2010	0	25	75
11	COA1	2	11-COA1-2	2010	5	10	85
12	COA2	1	12-COA2-1	2010	50	0	50
12	COA2	2	12-COA2-2	2010	65	10	25
13	SDC 1i	1	13-SDC 1i-1	2010	95	0	5
14	SDC 5b	1	14-SDC 5b-1	2010	20	75	5
14	SDC 5b	2	14-SDC 5b-2	2010	0	95	5
15	Los Lunas	1	15-Los Lunas-1	2010	35	60	5
15	Los Lunas	2	15-Los Lunas-2	2010	25	75	0
15	Los Lunas	3	15-Los Lunas-3	2010	15	80	5
15	Los Lunas	4	15-Los Lunas-4	2010	0	100	0
15	Los Lunas	5	15-Los Lunas-5	2010	25	50	25
15	Los Lunas	6	15-Los Lunas-6	2010	50	50	0
16	PER 19	1	16-PER 19-1	2010	0	100	0
16	PER 19	2	16-PER 19-2	2010	100	0	0
17	PER 16	1	17-PER 16-1	2010	100	0	0
17	PER 16	2	17-PER 16-2	2010	0	0	100
17	PER 16	3	17-PER 16-3	2010	100	0	0
17	PER 16	4	17-PER 16-4	2010	0	0	100
18	LP1 1	1	18-LP1 1-1	2010	0	100	0
18	LP1 1	2	18-LP1 1-2	2010	100	0	0
19	LP1 3	1	19-LP1 3-1	2010	100	0	0
19	LP1 3	2	19-LP1 3-2	2010	0	100	0
20	Willie Chavez	1	20-Willie Chavez-1	2010	25	75	0
20	Willie Chavez	2	20-Willie Chavez-2	2010	0	100	0
20	Willie Chavez	3	20-Willie Chavez-3	2010	100	0	0
20	Willie Chavez	4	20-Willie Chavez-4	2010	0	100	0
1	NDC 1 ch	1	1-NDC 1 ch-1	2011	.	.	40
1	NDC 1 ch	2	1-NDC 1 ch-2	2011	.	.	50
1	NDC 1 ch	3	1-NDC 1 ch-3	2011	.	.	90
1	NDC 1 ch	4	1-NDC 1 ch-4	2011	.	.	40
3	PDN 9i	1	3-PDN 9i-1	2011	.	.	10
3	PDN 9i	2	3-PDN 9i-2	2011	.	.	10
3	PDN 9i	3	3-PDN 9i-3	2011	.	.	90
3	PDN 9i	4	3-PDN 9i-4	2011	.	.	5
4	PDN 11i	1	4-PDN 11i-1	2011	.	.	25
4	PDN 11i	2	4-PDN 11i-2	2011	.	.	10
4	PDN 11i	3	4-PDN 11i-3	2011	.	.	5
4	PDN 11i	4	4-PDN 11i-4	2011	.	.	70
4	PDN 11i	5	4-PDN 11i-5	2011	.	.	5
6	RGNC	1	6-RGNC-1	2011	.	.	15
6	RGNC	2	6-RGNC-2	2011	.	.	90
6	RGNC	3	6-RGNC-3	2011	.	.	20

MPT Site #	Site Name	Polygon	P-code	YEAR	Sparse	Dense	Bare
6	RGNC	4	6-RGNC-4	2011	.	.	15
6	RGNC	5	6-RGNC-5	2011	.	.	60
6	RGNC	6	6-RGNC-6	2011	.	.	80
6	RGNC	7	6-RGNC-7	2011	.	.	85
6	RGNC	8	6-RGNC-8	2011	.	.	50
6	RGNC	9	6-RGNC-9	2011	.	.	0
6	RGNC	10	6-RGNC-10	2011	.	.	5
7	I-40 2i	1	7-I-40 2i-1	2011	.	.	10
8	I-40 1ch	1	8-I-40 1ch-1	2011	.	.	75
8	I-40 1ch	2	8-I-40 1ch-2	2011	.	.	25
8	I-40 1ch	3	8-I-40 1ch-3	2011	.	.	40
8	I-40 1ch	4	8-I-40 1ch-4	2011	.	.	35
8	I-40 1ch	5	8-I-40 1ch-5	2011	.	.	30
8	I-40 1ch	6	8-I-40 1ch-6	2011	.	.	35
9	I-40 2b	1	9-I-40 2b-1	2011	.	.	85
9	I-40 2b	2	9-I-40 2b-2	2011	.	.	0
9	I-40 2b	3	9-I-40 2b-3	2011	.	.	60
9	I-40 2b	4	9-I-40 2b-4	2011	.	.	90
9	I-40 2b	5	9-I-40 2b-5	2011	.	.	55
9	I-40 2b	6	9-I-40 2b-6	2011	.	.	50
9	I-40 2b	7	9-I-40 2b-7	2011	.	.	45
9	I-40 2b	8	9-I-40 2b-8	2011	.	.	10
9	I-40 2b	9	9-I-40 2b-9	2011	.	.	45
9	I-40 2b	10	9-I-40 2b-10	2011	.	.	45
9	I-40 2b	11	9-I-40 2b-11	2011	.	.	90
9	I-40 2b	12	9-I-40 2b-12	2011	.	.	5
10	I-40 4b	1	10-I-40 4b-1	2011	.	.	15
10	I-40 4b	2	10-I-40 4b-2	2011	.	.	45
10	I-40 4b	3	10-I-40 4b-3	2011	.	.	10
10	I-40 4b	4	10-I-40 4b-4	2011	.	.	15
10	I-40 4b	5	10-I-40 4b-5	2011	.	.	5
10	I-40 4b	6	10-I-40 4b-6	2011	.	.	20
10	I-40 4b	7	10-I-40 4b-7	2011	.	.	15
10	I-40 4b	8	10-I-40 4b-8	2011	.	.	5
11	COA1	1	11-COA1-1	2011	.	.	5
11	COA1	2	11-COA1-2	2011	.	.	0
11	COA1	3	11-COA1-3	2011	.	.	75
11	COA1	4	11-COA1-4	2011	.	.	0
12	COA2	1	12-COA2-1	2011	.	.	25
12	COA2	2	12-COA2-2	2011	.	.	60
13	SDC 1i	1	13-SDC 1i-1	2011	.	.	0
13	SDC 1i	2	13-SDC 1i-2	2011	.	.	15
16	PER 19	1	16-PER 19-1	2011	.	.	0
16	PER 19	2	16-PER 19-2	2011	.	.	10
17	PER 16	1	17-PER 16-1	2011	.	.	90
17	PER 16	2	17-PER 16-2	2011	.	.	10
17	PER 16	3	17-PER 16-3	2011	.	.	5
17	PER 16	4	17-PER 16-4	2011	.	.	5
17	PER 16	5	17-PER 16-5	2011	.	.	10
17	PER 16	6	17-PER 16-6	2011	.	.	5
18	LP1 1	1	18-LP1 1-1	2011	.	.	5
18	LP1 1	2	18-LP1 1-2	2011	.	.	30
19	LP1 3	1	19-LP1 3-1	2011	.	.	5
19	LP1 3	2	19-LP1 3-2	2011	.	.	40
20	Willie Chavez	1	20-Willie Chavez-1	2011	.	.	30
20	Willie Chavez	2	20-Willie Chavez-2	2011	.	.	10
20	Willie Chavez	3	20-Willie Chavez-3	2011	.	.	60
20	Willie Chavez	4	20-Willie Chavez-4	2011	.	.	50
20	Willie Chavez	5	20-Willie Chavez-5	2011	.	.	70
20	Willie Chavez	6	20-Willie Chavez-6	2011	.	.	40
23	Bel 5	1	23-Bel 5-1	2011	.	.	45
23	Bel 5	2	23-Bel 5-2	2011	.	.	5
24	STR 4	1	24-STR 4-1	2011	.	.	4
24	STR 4	2	24-STR 4-2	2011	.	.	15
24	STR 4	3	24-STR 4-3	2011	.	.	85

MPT Site #	Site Name	Polygon	P-code	YEAR	Sparse	Dense	Bare
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2011	.	.	0
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2011	.	.	10
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2011	.	.	15
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2011	.	.	5
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2011	.	.	15
25	SDC 9b/5b	6	25-SDC 9b/5b-6	2011	.	.	0
25	SDC 9b/5b	7	25-SDC 9b/5b-7	2011	.	.	15
25	SDC 9b/5b	8	25-SDC 9b/5b-8	2011	.	.	20
25	SDC 9b/5b	9	25-SDC 9b/5b-9	2011	.	.	0
26	SDC 9i	1	26-SDC 9i-1	2011	.	.	5
26	SDC 9i	2	26-SDC 9i-2	2011	.	.	10
26	SDC 9i	3	26-SDC 9i-3	2011	.	.	95
26	SDC 9i	4	26-SDC 9i-4	2011	.	.	5
1	NDC 1 ch	1	1-NDC 1 ch-1	2012	.	.	15
1	NDC 1 ch	2	1-NDC 1 ch-2	2012	.	.	30
1	NDC 1 ch	3	1-NDC 1 ch-3	2012	.	.	45
3	PDN 9i	1	3-PDN 9i-1	2012	.	.	0
3	PDN 9i	2	3-PDN 9i-2	2012	.	.	0
4	PDN 11i	1	4-PDN 11i-1	2012	.	.	0
4	PDN 11i	2	4-PDN 11i-2	2012	.	.	0
6	RGNC	1	6-RGNC-1	2012	.	.	5
6	RGNC	2	6-RGNC-2	2012	.	.	0
6	RGNC	3	6-RGNC-3	2012	.	.	0
6	RGNC	4	6-RGNC-4	2012	.	.	40
6	RGNC	5	6-RGNC-5	2012	.	.	65
6	RGNC	6	6-RGNC-6	2012	.	.	90
6	RGNC	7	6-RGNC-7	2012	.	.	25
6	RGNC	8	6-RGNC-8	2012	.	.	15
6	RGNC	9	6-RGNC-9	2012	.	.	7
7	I-40 2i	1	7-I-40 2i-1	2012	.	.	0
8	I-40 1ch	1	8-I-40 1ch-1	2012	.	.	40
8	I-40 1ch	2	8-I-40 1ch-2	2012	.	.	20
8	I-40 1ch	3	8-I-40 1ch-3	2012	.	.	50
8	I-40 1ch	4	8-I-40 1ch-4	2012	.	.	20
8	I-40 1ch	5	8-I-40 1ch-5	2012	.	.	0
9	I-40 2b	1	9-I-40 2b-1	2012	.	.	20
9	I-40 2b	2	9-I-40 2b-2	2012	.	.	40
9	I-40 2b	3	9-I-40 2b-3	2012	.	.	25
9	I-40 2b	4	9-I-40 2b-4	2012	.	.	40
9	I-40 2b	5	9-I-40 2b-5	2012	.	.	10
9	I-40 2b	6	9-I-40 2b-6	2012	.	.	60
10	I-40 4b	1	10-I-40 4b-1	2012	.	.	5
10	I-40 4b	2	10-I-40 4b-2	2012	.	.	10
10	I-40 4b	3	10-I-40 4b-3	2012	.	.	20
10	I-40 4b	4	10-I-40 4b-4	2012	.	.	5
11	COA1	1	11-COA1-1	2012	.	.	5
11	COA1	2	11-COA1-2	2012	.	.	5
11	COA1	3	11-COA1-3	2012	.	.	5
12	COA2	1	12-COA2-1	2012	.	.	20
12	COA2	2	12-COA2-2	2012	.	.	40
12	COA2	3	12-COA2-3	2012	.	.	15
13	SDC 1i	1	13-SDC 1i-1	2012	.	.	5
14	SDC 5b	1	14-SDC 5b-1	2012	.	.	5
14	SDC 5b	2	14-SDC 5b-2	2012	.	.	5
16	PER 19	1	16-PER 19-1	2012	.	.	4
16	PER 19	2	16-PER 19-2	2012	.	.	40
17	PER 16	1	17-PER 16-1	2012	.	.	50
17	PER 16	2	17-PER 16-2	2012	.	.	10
17	PER 16	3	17-PER 16-3	2012	.	.	5
18	LP1 1	1	18-LP1 1-1	2012	.	.	25
18	LP1 1	2	18-LP1 1-2	2012	.	.	0
18	LP1 1	3	18-LP1 1-3	2012	.	.	10
19	LP1 3	1	19-LP1 3-1	2012	.	.	25
19	LP1 3	2	19-LP1 3-2	2012	.	.	5
20	Willie Chavez	1	20-Willie Chavez-1	2012	.	.	25

MPT Site #	Site Name	Polygon	P-code	YEAR	Sparse	Dense	Bare
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2012	.	.	0
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2012	.	.	0
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2012	.	.	0
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2012	.	.	0
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2012	.	.	0
26	SDC 9i	1	26-SDC 9i-1	2012	.	.	70
26	SDC 9i	2	26-SDC 9i-2	2012	.	.	5

Table 2. Tree Planting Survival Data (periods in cells denote no data collected

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
	NDC 1 ch	1	-NDC 1 ch-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
2	PDN-7i	1	2-PDN-7i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	1	3-PDN 9i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	2	3-PDN 9i-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	3	3-PDN 9i-3	2010	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	4	3-PDN 9i-4	2010	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	1	4-PDN 11i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	2	4-PDN 11i-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
5	PDN 13i	1	5-PDN 13i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
5	PDN 13i	2	5-PDN 13i-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	1	6-RGNC-1	2010	0	0	0	0	0	0	0	0	0	0	0	0
6	RGNC	2	6-RGNC-2	2010	95	100	0	0	0	0	100	0	0	0	0	0
6	RGNC	3	6-RGNC-3	2010	0	0	0	0	0	0	100	0	0	0	0	0
6	RGNC	4	6-RGNC-4	2010	50	100	0	0	0	0	100	0	0	0	0	0
6	RGNC	5	6-RGNC-5	2010	0	0	0	0	0	0	100	0	0	0	0	0
6	RGNC	6	6-RGNC-6	2010	50	100	0	0	0	0	100	0	0	0	0	0
10	I-40 4b	1	10-I-40 4b-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	2	10-I-40 4b-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	3	10-I-40 4b-3	2010	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	1	11-COA1-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	2	11-COA1-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	1	12-COA2-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	2	12-COA2-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
13	SDC 1i	1	13-SDC 1i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
14	SDC 5b	1	14-SDC 5b-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
14	SDC 5b	2	14-SDC 5b-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	1	15-Los Lunas-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	2	15-Los Lunas-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	3	15-Los Lunas-3	2010	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	4	15-Los Lunas-4	2010	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	5	15-Los Lunas-5	2010	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	6	15-Los Lunas-6	2010	.	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	1	16-PER 19-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	2	16-PER 19-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	1	17-PER 16-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	2	17-PER 16-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	3	17-PER 16-3	2010	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	4	17-PER 16-4	2010	.	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	1	18-LP1 1-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	2	18-LP1 1-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	1	19-LP1 3-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	2	19-LP1 3-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	1	20-Willie Chavez-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	2	20-Willie Chavez-2	2010	.	.	.	.	.	.	.	.	.	.	.	.

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
20	Willie Chavez	3	20-Willie Chavez-3	2010	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	4	20-Willie Chavez-4	2010	.	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	1	1-NDC 1 ch-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	2	1-NDC 1 ch-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	3	1-NDC 1 ch-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	4	1-NDC 1 ch-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	1	3-PDN 9i-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	2	3-PDN 9i-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	3	3-PDN 9i-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	4	3-PDN 9i-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	1	4-PDN 11i-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	2	4-PDN 11i-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	3	4-PDN 11i-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	4	4-PDN 11i-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	5	4-PDN 11i-5	2011	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	1	6-RGNC-1	2011	50	100	0	0	0	0	75	0	0	0	0	0
6	RGNC	2	6-RGNC-2	2011	0	75	0	0	0	0	0	0	0	0	0	0
6	RGNC	3	6-RGNC-3	2011	0	100	0	0	0	0	90	0	0	0	0	0
6	RGNC	4	6-RGNC-4	2011	0	50	0	0	0	0	0	0	0	0	0	0
6	RGNC	5	6-RGNC-5	2011	50	80	0	0	0	0	80	0	0	0	0	0
6	RGNC	6	6-RGNC-6	2011	75	85	0	0	0	0	90	0	0	0	0	0
6	RGNC	7	6-RGNC-7	2011	0	25	0	0	0	0	25	0	0	0	0	0
6	RGNC	8	6-RGNC-8	2011	75	80	0	0	0	0	90	0	0	0	0	0
6	RGNC	9	6-RGNC-9	2011	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	10	6-RGNC-10	2011	.	.	.	.	.	.	.	.	.	.	.	.
7	I-40 2i	1	7-I-40 2i-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	1	8-I-40 1ch-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	2	8-I-40 1ch-2	2011	0	0	0	0	0	0	<	0	0	0	0	0
8	I-40 1ch	3	8-I-40 1ch-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	4	8-I-40 1ch-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	5	8-I-40 1ch-5	2011	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	6	8-I-40 1ch-6	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	1	9-I-40 2b-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	2	9-I-40 2b-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	3	9-I-40 2b-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	4	9-I-40 2b-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	5	9-I-40 2b-5	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	6	9-I-40 2b-6	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	7	9-I-40 2b-7	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	8	9-I-40 2b-8	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	9	9-I-40 2b-9	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	10	9-I-40 2b-10	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	11	9-I-40 2b-11	2011	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	12	9-I-40 2b-12	2011	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	1	10-I-40 4b-1	2011	.	.	.	.	.	.	.	.	.	.	.	.

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
10	I-40 4b	2	10-I-40 4b-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	3	10-I-40 4b-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	4	10-I-40 4b-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	5	10-I-40 4b-5	2011	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	6	10-I-40 4b-6	2011	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	7	10-I-40 4b-7	2011	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	8	10-I-40 4b-8	2011	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	1	11-COA1-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	2	11-COA1-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	3	11-COA1-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	4	11-COA1-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	1	12-COA2-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	2	12-COA2-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
13	SDC 1i	1	13-SDC 1i-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
13	SDC 1i	2	13-SDC 1i-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	1	16-PER 19-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	2	16-PER 19-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	1	17-PER 16-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	2	17-PER 16-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	3	17-PER 16-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	4	17-PER 16-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	5	17-PER 16-5	2011	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	6	17-PER 16-6	2011	.	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	1	18-LP1 1-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	2	18-LP1 1-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	1	19-LP1 3-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	2	19-LP1 3-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	1	20-Willie Chavez-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	2	20-Willie Chavez-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	3	20-Willie Chavez-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	4	20-Willie Chavez-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	5	20-Willie Chavez-5	2011	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	6	20-Willie Chavez-6	2011	.	.	.	.	.	.	.	.	.	.	.	.
23	Bel 5	1	23-Bel 5-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
23	Bel 5	2	23-Bel 5-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
24	STR 4	1	24-STR 4-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
24	STR 4	2	24-STR 4-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
24	STR 4	3	24-STR 4-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2011	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	6	25-SDC 9b/5b-6	2011	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	7	25-SDC 9b/5b-7	2011	.	.	.	.	.	.	.	.	.	.	.	.

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
25	SDC 9b/5b	8	25-SDC 9b/5b-8	2011	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	9	25-SDC 9b/5b-9	2011	.	.	.	.	.	.	.	.	.	.	.	.
26	SDC 9i	1	26-SDC 9i-1	2011	.	.	.	.	.	.	.	.	.	.	.	.
26	SDC 9i	2	26-SDC 9i-2	2011	.	.	.	.	.	.	.	.	.	.	.	.
26	SDC 9i	3	26-SDC 9i-3	2011	.	.	.	.	.	.	.	.	.	.	.	.
26	SDC 9i	4	26-SDC 9i-4	2011	.	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	1	1-NDC 1 ch-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	2	1-NDC 1 ch-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	3	1-NDC 1 ch-3	2012	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	1	3-PDN 9i-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	2	3-PDN 9i-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	1	4-PDN 11i-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	2	4-PDN 11i-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	1	6-RGNC-1	2012	0	50	0	5	15	0	0	25	0	0	0	0
6	RGNC	2	6-RGNC-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	3	6-RGNC-3	2012	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	4	6-RGNC-4	2012	100	100	0	0	0	0	100	0	0	0	0	0
6	RGNC	5	6-RGNC-5	2012	50	75	0	0	0	0	50	0	0	0	0	0
6	RGNC	6	6-RGNC-6	2012	0	50	0	0	0	0	75	0	0	0	0	0
6	RGNC	7	6-RGNC-7	2012	25	75	90	0	0	0	50	100	0	0	0	0
6	RGNC	8	6-RGNC-8	2012	0	50	100	0	0	0	0	0	0	50	0	0
6	RGNC	9	6-RGNC-9	2012	10	75	0	0	0	0	25	0	75	50	0	0
7	I-40 2i	1	7-I-40 2i-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	1	8-I-40 1ch-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	2	8-I-40 1ch-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	3	8-I-40 1ch-3	2012	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	4	8-I-40 1ch-4	2012	.	.	.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	5	8-I-40 1ch-5	2012	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	1	9-I-40 2b-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	2	9-I-40 2b-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	3	9-I-40 2b-3	2012	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	4	9-I-40 2b-4	2012	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	5	9-I-40 2b-5	2012	.	.	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	6	9-I-40 2b-6	2012	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	1	10-I-40 4b-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	2	10-I-40 4b-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	3	10-I-40 4b-3	2012	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	4	10-I-40 4b-4	2012	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	1	11-COA1-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	2	11-COA1-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	3	11-COA1-3	2012	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	1	12-COA2-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	2	12-COA2-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	3	12-COA2-3	2012	.	.	.	.	.	.	.	.	.	.	.	.
13	SDC 1i	1	13-SDC 1i-1	2012	.	.	.	.	.	.	.	.	.	.	.	.

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
14	SDC 5b	1	14-SDC 5b-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
14	SDC 5b	2	14-SDC 5b-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	1	16-PER 19-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	2	16-PER 19-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	1	17-PER 16-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	2	17-PER 16-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	3	17-PER 16-3	2012	10	75	0	0	10	0	5	0	0	0	0	0
18	LP1 1	1	18-LP1 1-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	2	18-LP1 1-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	3	18-LP1 1-3	2012	.	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	1	19-LP1 3-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	2	19-LP1 3-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	1	20-Willie Chavez-1	2012	5	50	0	0	0	0	45	0	0	0	0	0
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2012	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2012	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2012	.	.	.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2012	.	.	.	.	.	.	.	.	.	.	.	.
26	SDC 9i	1	26-SDC 9i-1	2012	.	.	.	.	.	.	.	.	.	.	.	.
26	SDC 9i	2	26-SDC 9i-2	2012	.	.	.	.	.	.	.	.	.	.	.	.

Table 3. Woody Vegetation Cover Data

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
1	NDC 1 ch	1	1-NDC 1 ch-1	2010	5	95	0	0	0	0	0	0	0	0	0	0
2	PDN-7i	1	2-PDN-7i-1	2010	20	65	0	5	10	0	0	0	0	0	0	0
3	PDN 9i	1	3-PDN 9i-1	2010	50	50	0	0	0	0	0	0	0	0	0	0
3	PDN 9i	2	3-PDN 9i-2	2010	5	90	0	0	0	0	5	0	0	0	0	0
3	PDN 9i	3	3-PDN 9i-3	2010	50	50	0	0	0	0	0	0	0	0	0	0
3	PDN 9i	4	3-PDN 9i-4	2010	0	0	0	0	0	0	0	0	0	0	0	0
4	PDN 11i	1	4-PDN 11i-1	2010	0	100	0	0	0	0	0	0	0	0	0	0
4	PDN 11i	2	4-PDN 11i-2	2010	40	60	0	0	0	0	0	0	0	0	0	0
5	PDN 13i	1	5-PDN 13i-1	2010	10	80	0	0	10	0	0	0	0	0	0	0
5	PDN 13i	2	5-PDN 13i-2	2010	5	90	0	0	5	0	0	0	0	0	0	0
6	RGNC	1	6-RGNC-1	2010	5	90	0	5	0	0	0	0	0	0	0	0
6	RGNC	2	6-RGNC-2	2010	40	60	0	0	0	0	0	0	0	0	0	0
6	RGNC	3	6-RGNC-3	2010	30	50	0	0	0	0	20	0	0	0	0	0
6	RGNC	4	6-RGNC-4	2010	5	90	0	0	0	0	5	0	0	0	0	0
6	RGNC	5	6-RGNC-5	2010	50	50	0	0	0	0	0	0	0	0	0	0
6	RGNC	6	6-RGNC-6	2010	10	80	0	5	5	0	0	0	0	0	0	0
10	I-40 4b	1	10-I-40 4b-1	2010	15	80	0	0	5	0	0	0	0	0	0	0
10	I-40 4b	2	10-I-40 4b-2	2010	5	85	0	0	10	0	0	0	0	0	0	0

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
10	I-40 4b	3	10-I-40 4b-3	2010	30	60	0	0	10	0	0	0	0	0	0	0
11	COA1	1	11-COA1-1	2010	20	75	0	5	0	0	0	0	0	0	0	0
11	COA1	2	11-COA1-2	2010	90	10	0	0	0	0	0	0	0	0	0	0
12	COA2	1	12-COA2-1	2010	40	60	0	0	0	0	0	0	0	0	0	0
12	COA2	2	12-COA2-2	2010	50	50	0	0	0	0	0	0	0	0	0	0
13	SDC 1i	1	13-SDC 1i-1	2010	0	0	0	10	90	0	0	0	0	0	0	0
14	SDC 5b	1	14-SDC 5b-1	2010	10	70	0	5	5	10	0	0	0	0	0	0
14	SDC 5b	2	14-SDC 5b-2	2010	10	85	0	0	5	0	0	0	0	0	0	0
15	Los Lunas	1	15-Los Lunas-1	2010	80	5	0	10	5	0	0	0	0	0	0	0
15	Los Lunas	2	15-Los Lunas-2	2010	90	0	0	5	5	0	0	0	0	0	0	0
15	Los Lunas	3	15-Los Lunas-3	2010	50	35	0	5	5	0	5	0	0	0	0	0
15	Los Lunas	4	15-Los Lunas-4	2010	30	0	0	30	0	0	40	0	0	0	0	0
15	Los Lunas	5	15-Los Lunas-5	2010	70	10	0	20	0	0	0	0	0	0	0	0
15	Los Lunas	6	15-Los Lunas-6	2010	20	60	0	15	5	0	0	0	0	0	0	0
16	PER 19	1	16-PER 19-1	2010	10	90	0	0	0	0	0	0	0	0	0	0
16	PER 19	2	16-PER 19-2	2010	0	50	0	0	0	0	50	0	0	0	0	0
17	PER 16	1	17-PER 16-1	2010	5	95	0	0	0	0	0	0	0	0	0	0
17	PER 16	2	17-PER 16-2	2010	50	50	0	0	0	0	0	0	0	0	0	0
17	PER 16	3	17-PER 16-3	2010	10	60	0	0	0	0	30	0	0	0	0	0
17	PER 16	4	17-PER 16-4	2010	50	50	0	0	0	0	0	0	0	0	0	0
18	LP1 1	1	18-LP1 1-1	2010	10	90	0	0	0	0	0	0	0	0	0	0
18	LP1 1	2	18-LP1 1-2	2010	10	90	0	0	0	0	0	0	0	0	0	0
19	LP1 3	1	19-LP1 3-1	2010	50	50	0	0	0	0	0	0	0	0	0	0
19	LP1 3	2	19-LP1 3-2	2010	50	50	0	0	0	0	0	0	0	0	0	0
20	Willie Chavez	1	20-Willie Chavez-1	2010	40	20	0	40	0	0	0	0	0	0	0	0
20	Willie Chavez	2	20-Willie Chavez-2	2010	40	40	0	20	0	0	0	0	0	0	0	0
20	Willie Chavez	3	20-Willie Chavez-3	2010	50	0	0	50	0	0	0	0	0	0	0	0
20	Willie Chavez	4	20-Willie Chavez-4	2010	0	0	0	0	0	0	0	0	0	0	0	0
1	NDC 1 ch	1	1-NDC 1 ch-1	2011	4	35	0	0	0	0	0	0	0	0	0	0
1	NDC 1 ch	2	1-NDC 1 ch-2	2011	4	15	4	0	0	0	4	0	0	0	0	0
1	NDC 1 ch	3	1-NDC 1 ch-3	2011	4	0	0	0	0	0	0	0	0	0	0	0
1	NDC 1 ch	4	1-NDC 1 ch-4	2011	40	0	0	0	0	0	0	0	0	0	0	0
3	PDN 9i	1	3-PDN 9i-1	2011	5	75	0	0	4	0	5	0	0	0	0	0
3	PDN 9i	2	3-PDN 9i-2	2011	15	45	0	0	0	0	20	4	0	0	0	0
3	PDN 9i	3	3-PDN 9i-3	2011	10	5	0	4	0	0	0	0	0	0	0	0
3	PDN 9i	4	3-PDN 9i-4	2011	5	0	0	0	0	0	0	0	0	0	0	0
4	PDN 11i	1	4-PDN 11i-1	2011	5	40	0	0	0	0	4	0	0	0	0	0
4	PDN 11i	2	4-PDN 11i-2	2011	15	70	0	0	4	0	10	0	0	0	0	0
4	PDN 11i	3	4-PDN 11i-3	2011	5	50	0	0	10	0	20	4	0	0	0	0
4	PDN 11i	4	4-PDN 11i-4	2011	4	20	0	0	0	0	0	5	0	0	0	0
4	PDN 11i	5	4-PDN 11i-5	2011	25	40	0	4	4	0	10	5	0	0	0	0
6	RGNC	1	6-RGNC-1	2011	5	60	0	0	4	0	0	0	0	0	0	0
6	RGNC	2	6-RGNC-2	2011	4	4	0	4	0	0	4	0	0	0	0	0
6	RGNC	3	6-RGNC-3	2011	5	60	0	0	5	0	0	0	0	0	0	0
6	RGNC	4	6-RGNC-4	2011	20	40	0	0	0	0	0	0	0	0	0	0

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
6	RGNC	5	6-RGNC-5	2011	0	30	0	0	0	0	4	0	0	0	0	0
6	RGNC	6	6-RGNC-6	2011	4	10	0	4	0	0	0	0	0	0	0	0
6	RGNC	7	6-RGNC-7	2011	5	5	0	0	0	0	0	4	0	0	0	0
6	RGNC	8	6-RGNC-8	2011	5	30	0	4	0	0	0	0	0	0	0	0
6	RGNC	9	6-RGNC-9	2011	4	4	0	4	0	0	0	0	0	0	0	0
6	RGNC	10	6-RGNC-10	2011	0	50	0	5	4	0	0	25	0	0	0	0
7	I-40 2i	1	7-I-40 2i-1	2011	4	90	0	5	5	0	0	0	0	0	0	0
8	I-40 1ch	1	8-I-40 1ch-1	2011	10	10	0	0	0	0	0	0	0	0	0	0
8	I-40 1ch	2	8-I-40 1ch-2	2011	5	50	0	0	4	5	0	0	0	0	0	5
8	I-40 1ch	3	8-I-40 1ch-3	2011	35	5	0	0	4	0	0	0	0	0	0	0
8	I-40 1ch	4	8-I-40 1ch-4	2011	5	30	0	0	4	0	0	0	0	0	0	0
8	I-40 1ch	5	8-I-40 1ch-5	2011	15	45	0	0	0	0	0	0	0	0	0	0
8	I-40 1ch	6	8-I-40 1ch-6	2011	0	75	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	1	9-I-40 2b-1	2011	0	10	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	2	9-I-40 2b-2	2011	5	90	0	0	0	4	0	0	0	0	0	0
9	I-40 2b	3	9-I-40 2b-3	2011	25	10	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	4	9-I-40 2b-4	2011	5	0	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	5	9-I-40 2b-5	2011	15	15	0	0	0	4	0	0	0	0	0	0
9	I-40 2b	6	9-I-40 2b-6	2011	10	0	0	0	0	4	0	0	0	0	0	0
9	I-40 2b	7	9-I-40 2b-7	2011	25	25	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	8	9-I-40 2b-8	2011	10	65	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	9	9-I-40 2b-9	2011	5	35	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	10	9-I-40 2b-10	2011	10	25	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	11	9-I-40 2b-11	2011	4	5	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	12	9-I-40 2b-12	2011	0	5	0	4	4	0	0	0	0	0	0	0
10	I-40 4b	1	10-I-40 4b-1	2011	4	90	0	0	4	0	4	0	0	0	0	0
10	I-40 4b	2	10-I-40 4b-2	2011	4	10	0	4	0	0	0	0	0	0	0	0
10	I-40 4b	3	10-I-40 4b-3	2011	10	45	0	0	10	5	0	0	0	0	0	0
10	I-40 4b	4	10-I-40 4b-4	2011	15	50	0	4	4	4	0	4	0	0	0	0
10	I-40 4b	5	10-I-40 4b-5	2011	60	10	0	0	20	4	0	0	0	0	0	0
10	I-40 4b	6	10-I-40 4b-6	2011	5	70	0	0	10	4	0	4	0	0	0	0
10	I-40 4b	7	10-I-40 4b-7	2011	5	50	0	0	4	4	0	0	0	0	0	0
10	I-40 4b	8	10-I-40 4b-8	2011	40	60	0	4	4	0	0	0	0	0	0	0
11	COA1	1	11-COA1-1	2011	0	40	0	0	0	0	0	0	0	0	0	0
11	COA1	2	11-COA1-2	2011	40	40	0	0	0	0	20	0	0	0	0	0
11	COA1	3	11-COA1-3	2011	15	5	0	4	0	0	0	0	0	0	0	0
11	COA1	4	11-COA1-4	2011	15	70	0	4	4	0	4	0	0	0	0	0
12	COA2	1	12-COA2-1	2011	20	60	0	0	0	0	0	0	0	0	0	0
12	COA2	2	12-COA2-2	2011	4	25	0	0	0	0	0	0	0	0	0	0
13	SDC 1i	1	13-SDC 1i-1	2011	5	80	0	0	4	0	5	0	0	0	0	0
13	SDC 1i	2	13-SDC 1i-2	2011	4	15	0	0	5	0	0	0	0	0	0	0
16	PER 19	1	16-PER 19-1	2011	0	10	0	0	0	0	0	0	0	0	0	0
16	PER 19	2	16-PER 19-2	2011	0	80	0	0	10	0	4	0	0	0	0	0
17	PER 16	1	17-PER 16-1	2011	5	10	0	0	0	0	0	0	0	0	0	0
17	PER 16	2	17-PER 16-2	2011	10	45	0	0	0	0	4	0	0	0	0	0

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
17	PER 16	3	17-PER 16-3	2011	10	80	0	0	4	0	0	4	0	0	0	4
17	PER 16	4	17-PER 16-4	2011	5	4	0	0	0	0	4	0	0	0	0	0
17	PER 16	5	17-PER 16-5	2011	10	40	0	0	0	0	40	0	0	0	0	0
17	PER 16	6	17-PER 16-6	2011	10	10	0	0	50	0	10	0	0	0	0	0
18	LP1 1	1	18-LP1 1-1	2011	20	60	0	0	0	0	0	0	0	0	0	0
18	LP1 1	2	18-LP1 1-2	2011	10	50	0	0	5	0	4	0	0	0	0	0
19	LP1 3	1	19-LP1 3-1	2011	20	60	0	4	0	0	4	0	0	0	0	0
19	LP1 3	2	19-LP1 3-2	2011	40	20	0	10	4	0	4	0	0	0	0	0
20	Willie Chavez	1	20-Willie Chavez-1	2011	60	4	0	30	0	0	0	0	0	0	0	0
20	Willie Chavez	2	20-Willie Chavez-2	2011	4	70	0	0	0	0	4	0	0	0	0	0
20	Willie Chavez	3	20-Willie Chavez-3	2011	20	5	0	0	0	0	4	0	0	0	0	0
20	Willie Chavez	4	20-Willie Chavez-4	2011	0	0	0	5	0	0	0	0	0	0	0	0
20	Willie Chavez	5	20-Willie Chavez-5	2011	4	0	0	30	0	0	0	0	0	0	0	0
20	Willie Chavez	6	20-Willie Chavez-6	2011	0	40	0	20	0	0	0	0	0	0	0	0
23	Bel 5	1	23-Bel 5-1	2011	10	50	0	0	0	0	4	0	0	0	0	0
23	Bel 5	2	23-Bel 5-2	2011	4	10	0	4	0	0	0	0	0	0	0	0
24	STR 4	1	24-STR 4-1	2011	5	20	0	0	0	0	5	0	0	0	0	0
24	STR 4	2	24-STR 4-2	2011	0	5	0	0	0	0	0	0	0	0	0	0
24	STR 4	3	24-STR 4-3	2011	4	10	0	4	4	0	0	0	0	0	0	0
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2011	0	5	0	0	4	0	0	5	0	0	0	0
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2011	0	0	0	0	0	0	0	0	0	0	0	0
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2011	4	10	0	4	0	0	0	0	0	0	0	0
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2011	5	0	0	0	4	0	0	0	0	0	0	0
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2011	4	10	0	4	4	0	0	0	0	0	0	0
25	SDC 9b/5b	6	25-SDC 9b/5b-6	2011	0	4	0	4	5	0	0	0	0	0	0	0
25	SDC 9b/5b	7	25-SDC 9b/5b-7	2011	5	5	0	0	4	0	0	4	0	0	0	0
25	SDC 9b/5b	8	25-SDC 9b/5b-8	2011	0	4	0	4	0	0	0	0	0	0	0	0
25	SDC 9b/5b	9	25-SDC 9b/5b-9	2011	5	5	0	0	0	0	0	0	0	0	0	0
26	SDC 9i	1	26-SDC 9i-1	2011	4	5	0	0	4	0	0	0	0	0	0	0
26	SDC 9i	2	26-SDC 9i-2	2011	5	60	0	0	4	0	0	0	0	0	0	0
26	SDC 9i	3	26-SDC 9i-3	2011	0	5	0	0	0	0	4	0	0	0	0	0
26	SDC 9i	4	26-SDC 9i-4	2011	4	30	0	0	4	0	0	0	0	0	0	0
1	NDC 1 ch	1	1-NDC 1 ch-1	2012	0	85	4	0	0	0	4	0	0	0	0	0
1	NDC 1 ch	2	1-NDC 1 ch-2	2012	100	0	0	0	0	0	0	0	0	0	0	0
1	NDC 1 ch	3	1-NDC 1 ch-3	2012	55	0	0	0	0	0	0	4	4	0	0	0
3	PDN 9i	1	3-PDN 9i-1	2012	100	0	0	0	0	4	0	0	0	0	0	0
3	PDN 9i	2	3-PDN 9i-2	2012	20	65	0	0	5	5	5	0	0	0	0	0
4	PDN 11i	1	4-PDN 11i-1	2012	15	60	0	25	25	0	0	0	0	0	0	0
4	PDN 11i	2	4-PDN 11i-2	2012	50	50	0	25	65	0	0	0	0	0	0	0
6	RGNC	1	6-RGNC-1	2012	0	0	0	0	0	0	0	0	0	0	0	0
6	RGNC	2	6-RGNC-2	2012	0	95	0	0	0	0	5	0	0	0	0	0
6	RGNC	3	6-RGNC-3	2012	15	80	0	5	0	0	0	0	0	0	0	0
6	RGNC	4	6-RGNC-4	2012	15	40	0	5	0	0	0	4	0	0	0	0
6	RGNC	5	6-RGNC-5	2012	5	30	0	0	0	0	0	0	0	0	0	0
6	RGNC	6	6-RGNC-6	2012	4	5	0	5	4	0	0	0	0	0	0	0

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
6	RGNC	7	6-RGNC-7	2012	5	70	0	4	4	0	0	4	0	0	0	0
6	RGNC	8	6-RGNC-8	2012	40	40	0	0	5	0	0	0	0	0	0	0
6	RGNC	9	6-RGNC-9	2012	5	80	0	0	5	0	0	0	4	0	0	0
7	I-40 2i	1	7-I-40 2i-1	2012	100	0	0	0	0	0	0	0	0	0	0	0
8	I-40 1ch	1	8-I-40 1ch-1	2012	20	20	0	0	0	0	0	0	0	0	0	0
8	I-40 1ch	2	8-I-40 1ch-2	2012	10	70	0	0	0	0	0	0	4	0	0	4
8	I-40 1ch	3	8-I-40 1ch-3	2012	40	5	0	0	0	0	5	0	0	0	0	0
8	I-40 1ch	4	8-I-40 1ch-4	2012	10	60	0	0	0	0	10	0	0	0	0	0
8	I-40 1ch	5	8-I-40 1ch-5	2012	5	85	0	0	10	0	0	0	0	0	0	0
9	I-40 2b	1	9-I-40 2b-1	2012	5	75	0	0	4	0	0	4	0	0	0	0
9	I-40 2b	2	9-I-40 2b-2	2012	35	25	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	3	9-I-40 2b-3	2012	0	75	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	4	9-I-40 2b-4	2012	50	5	0	0	5	4	0	0	0	0	0	0
9	I-40 2b	5	9-I-40 2b-5	2012	15	70	0	0	5	0	0	5	0	0	0	0
9	I-40 2b	6	9-I-40 2b-6	2012	15	0	0	0	25	0	0	0	0	0	0	0
10	I-40 4b	1	10-I-40 4b-1	2012	5	80	0	0	10	0	0	0	0	0	0	0
10	I-40 4b	2	10-I-40 4b-2	2012	5	80	0	0	0	5	0	0	0	0	0	0
10	I-40 4b	3	10-I-40 4b-3	2012	35	25	0	5	15	0	0	0	0	0	0	0
10	I-40 4b	4	10-I-40 4b-4	2012	30	50	0	0	0	0	15	0	0	0	0	0
11	COA1	1	11-COA1-1	2012	4	45	0	5	30	15	0	0	0	0	0	0
11	COA1	2	11-COA1-2	2012	0	45	0	10	20	15	0	0	0	5	0	0
11	COA1	3	11-COA1-3	2012	20	45	0	0	20	0	10	0	0	0	0	0
12	COA2	1	12-COA2-1	2012	5	50	0	0	10	0	0	15	0	0	0	0
12	COA2	2	12-COA2-2	2012	4	35	0	0	0	0	0	20	0	0	0	0
12	COA2	3	12-COA2-3	2012	15	50	0	0	10	0	4	10	0	0	0	0
13	SDC 1i	1	13-SDC 1i-1	2012	20	65	0	0	10	0	0	0	0	0	0	0
14	SDC 5b	1	14-SDC 5b-1	2012	10	50	0	0	20	15	0	0	0	0	0	0
14	SDC 5b	2	14-SDC 5b-2	2012	20	30	0	0	30	15	0	0	0	0	0	0
16	PER 19	1	16-PER 19-1	2012	20	70	0	10	4	0	25	4	0	0	0	0
16	PER 19	2	16-PER 19-2	2012	100	0	0	0	0	0	25	0	0	0	0	0
17	PER 16	1	17-PER 16-1	2012	0	100	0	0	0	0	0	0	0	0	0	0
17	PER 16	2	17-PER 16-2	2012	10	60	0	0	0	0	30	0	0	0	0	0
17	PER 16	3	17-PER 16-3	2012	0	0	0	0	0	0	0	0	0	0	0	0
18	LP1 1	1	18-LP1 1-1	2012	40	60	0	0	0	0	0	0	0	0	0	0
18	LP1 1	2	18-LP1 1-2	2012	30	70	0	0	0	0	0	0	0	0	0	0
18	LP1 1	3	18-LP1 1-3	2012	15	75	0	0	10	0	0	0	0	0	0	0
19	LP1 3	1	19-LP1 3-1	2012	70	30	0	4	4	0	0	0	0	0	0	0
19	LP1 3	2	19-LP1 3-2	2012	40	35	0	10	5	0	10	0	0	0	0	0
20	Willie Chavez	1	20-Willie Chavez-1	2012	0	0	0	0	0	0	0	0	0	0	0	0
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2012	50	50	0	0	0	0	0	0	0	0	0	0
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2012	25	20	0	15	35	0	4	0	0	0	0	0
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2012	5	25	0	0	40	0	10	20	0	0	0	0
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2012	45	50	0	0	0	0	5	0	0	0	0	0
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2012	20	25	0	0	50	0	4	5	0	0	0	0
26	SDC 9i	1	26-SDC 9i-1	2012	0	30	0	0	0	0	0	0	0	0	0	0

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
26	SDC 9i	2	26-SDC 9i-2	2012	20	65	0	0	10	0	0	0	0	0	0	0

Table 4. Woody Height Class Data (periods in cells denote no data collected)

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
1	NDC 1 ch	1	1-NDC 1 ch-1	2010	1	2	0	0	0	0	0	0	0	0	0	0
2	PDN-7i	1	2-PDN-7i-1	2010	0	2	0	0	4	0	0	0	0	0	0	0
3	PDN 9i	1	3-PDN 9i-1	2010	2	2	0	0	0	0	0	0	0	0	0	0
3	PDN 9i	2	3-PDN 9i-2	2010	4	4	0	0	0	0	4	0	0	0	0	0
3	PDN 9i	3	3-PDN 9i-3	2010	2	2	0	0	0	0	0	0	0	0	0	0
3	PDN 9i	4	3-PDN 9i-4	2010	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	1	4-PDN 11i-1	2010	0	2	0	0	0	0	0	0	0	0	0	0
4	PDN 11i	2	4-PDN 11i-2	2010	3	3	0	0	0	0	0	0	0	0	0	0
5	PDN 13i	1	5-PDN 13i-1	2010	0	2	0	0	2	0	0	0	0	0	0	0
5	PDN 13i	2	5-PDN 13i-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	1	6-RGNC-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	2	6-RGNC-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	3	6-RGNC-3	2010	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	4	6-RGNC-4	2010	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	5	6-RGNC-5	2010	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	6	6-RGNC-6	2010	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	1	10-I-40 4b-1	2010	3	3	0	0	3	0	0	0	0	0	0	0
10	I-40 4b	2	10-I-40 4b-2	2010	2	3	0	0	5	0	0	0	0	0	0	0
10	I-40 4b	3	10-I-40 4b-3	2010	2	3	0	0	5	0	0	0	0	0	0	0
11	COA1	1	11-COA1-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	2	11-COA1-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	1	12-COA2-1	2010	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	2	12-COA2-2	2010	.	.	.	.	.	.	.	.	.	.	.	.
13	SDC 1i	1	13-SDC 1i-1	2010	0	0	0	3	4	0	0	0	0	0	0	0
14	SDC 5b	1	14-SDC 5b-1	2010	1	3	0	3	4	4	0	0	0	0	0	0
14	SDC 5b	2	14-SDC 5b-2	2010	2	3	0	0	5	0	0	0	0	0	0	0
15	Los Lunas	1	15-Los Lunas-1	2010	5	3	0	3	0	5	0	0	0	0	0	0
15	Los Lunas	2	15-Los Lunas-2	2010	5	0	0	4	0	0	5	0	0	0	0	0
15	Los Lunas	3	15-Los Lunas-3	2010	5	4	0	3	5	0	5	0	0	0	0	0
15	Los Lunas	4	15-Los Lunas-4	2010	5	0	0	4	0	0	5	0	0	0	0	0
15	Los Lunas	5	15-Los Lunas-5	2010	5	2	0	5	0	0	0	0	0	0	0	0
15	Los Lunas	6	15-Los Lunas-6	2010	4	3	0	4	3	0	0	0	0	0	0	0
16	PER 19	1	16-PER 19-1	2010	1	2	0	0	0	0	0	0	0	0	0	0
16	PER 19	2	16-PER 19-2	2010	0	2	0	0	0	0	3	0	0	0	0	0
17	PER 16	1	17-PER 16-1	2010	3	3	0	0	0	0	0	0	0	0	0	0
17	PER 16	2	17-PER 16-2	2010	1	1	0	0	0	0	0	0	0	0	0	0
17	PER 16	3	17-PER 16-3	2010	1	3	0	0	0	0	2	0	0	0	0	0
17	PER 16	4	17-PER 16-4	2010	.	.	.	.	.	.	.	.	.	.	.	.

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
18	LP1 1	1	18-LP1 1-1	2010	1	3	0	0	0	0	0	0	0	0	0	0
18	LP1 1	2	18-LP1 1-2	2010	1	2	0	0	0	0	0	0	0	0	0	0
19	LP1 3	1	19-LP1 3-1	2010	1	1	0	0	0	0	0	0	0	0	0	0
19	LP1 3	2	19-LP1 3-2	2010	1	2	0	0	0	0	0	0	0	0	0	0
20	Willie Chavez	1	20-Willie Chavez-1	2010	1	1	0	1	0	0	0	0	0	0	0	0
20	Willie Chavez	2	20-Willie Chavez-2	2010	1	1	0	1	0	0	0	0	0	0	0	0
20	Willie Chavez	3	20-Willie Chavez-3	2010	1	0	0	1	0	0	0	0	0	0	0	0
20	Willie Chavez	4	20-Willie Chavez-4	2010	.	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	1	1-NDC 1 ch-1	2011	1	2	0	0	0	0	0	0	0	0	0	0
1	NDC 1 ch	2	1-NDC 1 ch-2	2011	1	1	1	0	0	0	1	0	0	0	0	0
1	NDC 1 ch	3	1-NDC 1 ch-3	2011	1	0	0	0	0	0	0	0	0	0	0	0
1	NDC 1 ch	4	1-NDC 1 ch-4	2011	2	0	0	0	0	0	0	0	0	0	0	0
3	PDN 9i	1	3-PDN 9i-1	2011	3	3	0	0	3	0	4	0	0	0	0	0
3	PDN 9i	2	3-PDN 9i-2	2011	1	2	0	0	0	0	3	1	0	0	0	0
3	PDN 9i	3	3-PDN 9i-3	2011	1	1	0	1	0	0	0	0	0	0	0	0
3	PDN 9i	4	3-PDN 9i-4	2011	1	0	0	0	0	0	0	0	0	0	0	0
4	PDN 11i	1	4-PDN 11i-1	2011	1	2	0	0	0	0	1	0	0	0	0	0
4	PDN 11i	2	4-PDN 11i-2	2011	3	3	0	0	3	0	3	0	0	0	0	0
4	PDN 11i	3	4-PDN 11i-3	2011	3	3	0	0	4	0	3	2	0	0	0	0
4	PDN 11i	4	4-PDN 11i-4	2011	0	0	0	0	0	0	0	0	0	0	0	0
4	PDN 11i	5	4-PDN 11i-5	2011	3	3	0	3	3	0	3	2	0	0	0	0
6	RGNC	1	6-RGNC-1	2011	1	2	0	0	4	0	2	0	0	0	0	0
6	RGNC	2	6-RGNC-2	2011	1	2	0	3	0	0	2	0	0	0	0	0
6	RGNC	3	6-RGNC-3	2011	2	3	0	0	2	0	2	0	0	0	0	0
6	RGNC	4	6-RGNC-4	2011	2	2	0	0	0	0	0	0	0	0	0	0
6	RGNC	5	6-RGNC-5	2011	3	2	0	0	0	0	2	0	0	0	0	0
6	RGNC	6	6-RGNC-6	2011	2	2	0	2	0	0	2	1	0	0	0	0
6	RGNC	7	6-RGNC-7	2011	2	2	0	0	0	0	2	0	0	0	0	0
6	RGNC	8	6-RGNC-8	2011	1	2	0	1	0	0	2	2	0	0	0	0
6	RGNC	9	6-RGNC-9	2011	1	1	0	1	0	0	0	0	0	0	0	0
6	RGNC	10	6-RGNC-10	2011	0	3	0	2	2	0	0	2	0	0	0	0
7	I-40 2i	1	7-I-40 2i-1	2011	2	4	0	3	4	0	0	0	0	0	0	0
8	I-40 1ch	1	8-I-40 1ch-1	2011	2	3	0	0	0	0	0	0	0	0	0	0
8	I-40 1ch	2	8-I-40 1ch-2	2011	2	3	0	0	4	2	0	0	0	0	0	2
8	I-40 1ch	3	8-I-40 1ch-3	2011	2	2	0	0	0	0	2	0	0	0	0	0
8	I-40 1ch	4	8-I-40 1ch-4	2011	2	2	0	0	1	0	0	0	0	0	0	0
8	I-40 1ch	5	8-I-40 1ch-5	2011	2	3	0	0	0	0	0	0	0	0	0	0
8	I-40 1ch	6	8-I-40 1ch-6	2011	0	3	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	1	9-I-40 2b-1	2011	0	2	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	2	9-I-40 2b-2	2011	2	2	0	0	0	2	0	0	0	0	0	0
9	I-40 2b	3	9-I-40 2b-3	2011	2	2	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	4	9-I-40 2b-4	2011	1	0	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	5	9-I-40 2b-5	2011	2	2	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	6	9-I-40 2b-6	2011	1	0	0	0	0	1	0	0	0	0	0	0
9	I-40 2b	7	9-I-40 2b-7	2011	2	1	0	0	0	0	0	0	0	0	0	0

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
9	I-40 2b	8	9-I-40 2b-8	2011	2	2	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	9	9-I-40 2b-9	2011	2	2	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	10	9-I-40 2b-10	2011	1	2	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	11	9-I-40 2b-11	2011	1	1	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	12	9-I-40 2b-12	2011	0	2	0	2	2	0	0	0	0	0	0	0
10	I-40 4b	1	10-I-40 4b-1	2011	3	3	0	0	4	0	3	0	0	0	0	0
10	I-40 4b	2	10-I-40 4b-2	2011	2	2	0	1	0	0	0	0	0	0	0	0
10	I-40 4b	3	10-I-40 4b-3	2011	3	3	0	0	3	4	0	0	0	0	0	0
10	I-40 4b	4	10-I-40 4b-4	2011	4	3	0	2	4	0	0	0	0	0	4	0
10	I-40 4b	5	10-I-40 4b-5	2011	5	3	0	0	3	2	0	0	0	0	0	0
10	I-40 4b	6	10-I-40 4b-6	2011	5	2	0	0	2	3	0	2	0	0	0	0
10	I-40 4b	7	10-I-40 4b-7	2011	3	3	0	0	3	3	0	0	0	0	0	0
10	I-40 4b	8	10-I-40 4b-8	2011	5	3	0	3	3	0	0	0	0	0	0	0
11	COA1	1	11-COA1-1	2011	0	0	0	0	0	0	0	0	0	0	0	0
11	COA1	2	11-COA1-2	2011	2	2	0	0	0	0	3	0	0	0	0	0
11	COA1	3	11-COA1-3	2011	1	1	0	1	0	0	0	0	0	0	0	0
11	COA1	4	11-COA1-4	2011	2	3	0	1	3	0	3	0	0	0	0	0
12	COA2	1	12-COA2-1	2011	1	2	0	0	0	0	0	0	0	0	0	0
12	COA2	2	12-COA2-2	2011	1	1	0	0	0	0	0	0	0	0	0	0
13	SDC 1i	1	13-SDC 1i-1	2011	2	3	0	0	3	0	0	0	0	0	0	0
13	SDC 1i	2	13-SDC 1i-2	2011	1	2	0	0	3	0	0	0	0	0	0	0
16	PER 19	1	16-PER 19-1	2011	0	2	0	0	0	0	0	0	0	0	0	0
16	PER 19	2	16-PER 19-2	2011	0	3	0	0	3	0	3	0	0	0	0	0
17	PER 16	1	17-PER 16-1	2011	2	2	0	0	0	0	0	0	0	0	0	0
17	PER 16	2	17-PER 16-2	2011	1	1	0	0	0	0	1	0	0	0	0	0
17	PER 16	3	17-PER 16-3	2011	2	3	0	0	3	0	0	2	0	0	0	1
17	PER 16	4	17-PER 16-4	2011	1	2	0	0	0	0	2	0	0	0	0	0
17	PER 16	5	17-PER 16-5	2011	2	3	0	0	0	0	3	0	0	0	0	0
17	PER 16	6	17-PER 16-6	2011	3	2	0	0	4	0	3	0	0	0	0	0
18	LP1 1	1	18-LP1 1-1	2011	3	3	0	0	0	0	0	0	0	0	0	0
18	LP1 1	2	18-LP1 1-2	2011	1	1	0	0	1	0	1	0	0	0	0	0
19	LP1 3	1	19-LP1 3-1	2011	3	3	0	1	0	0	2	0	0	0	0	0
19	LP1 3	2	19-LP1 3-2	2011	1	1	0	1	1	0	1	0	0	0	0	0
20	Willie Chavez	1	20-Willie Chavez-1	2011	2	1	0	1	0	0	0	0	0	0	0	0
20	Willie Chavez	2	20-Willie Chavez-2	2011	1	3	0	0	0	0	1	0	0	0	0	0
20	Willie Chavez	3	20-Willie Chavez-3	2011	1	1	0	0	0	0	1	0	0	0	0	0
20	Willie Chavez	4	20-Willie Chavez-4	2011	0	0	0	1	0	0	0	0	0	0	0	0
20	Willie Chavez	5	20-Willie Chavez-5	2011	1	0	0	1	0	0	0	0	0	0	0	0
20	Willie Chavez	6	20-Willie Chavez-6	2011	0	2	0	1	0	0	0	0	0	0	0	0
23	Bel 5	1	23-Bel 5-1	2011	1	2	0	0	0	0	2	0	0	0	0	0
23	Bel 5	2	23-Bel 5-2	2011	1	2	0	1	0	0	0	0	0	0	0	0
24	STR 4	1	24-STR 4-1	2011	2	2	0	0	0	0	0	0	0	0	0	0
24	STR 4	2	24-STR 4-2	2011	0	1	0	0	0	0	0	0	0	0	0	0
24	STR 4	3	24-STR 4-3	2011	1	1	0	2	1	0	0	0	0	0	0	0
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2011	0	1	0	0	1	0	0	1	0	0	0	0

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2011	1	1	0	1	0	0	0	0	0	0	0	0
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2011	1	0	0	0	0	0	0	0	0	0	0	0
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2011	1	1	0	1	1	0	0	0	0	0	0	0
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2011	0	1	0	1	1	0	0	0	0	0	0	0
25	SDC 9b/5b	6	25-SDC 9b/5b-6	2011	1	1	0	0	1	0	0	1	0	0	0	0
25	SDC 9b/5b	7	25-SDC 9b/5b-7	2011	0	1	0	1	0	0	0	0	0	0	0	0
25	SDC 9b/5b	8	25-SDC 9b/5b-8	2011	1	1	0	0	0	0	0	0	0	0	0	0
25	SDC 9b/5b	9	25-SDC 9b/5b-9	2011	0	0	0	0	0	0	0	0	0	0	0	0
26	SDC 9i	1	26-SDC 9i-1	2011	1	1	0	0	1	0	0	0	0	0	0	0
26	SDC 9i	2	26-SDC 9i-2	2011	1	2	0	0	1	0	0	0	0	0	0	0
26	SDC 9i	3	26-SDC 9i-3	2011	0	1	0	0	0	0	1	0	0	0	0	0
26	SDC 9i	4	26-SDC 9i-4	2011	1	2	0	0	0	0	0	0	0	0	0	0
1	NDC 1 ch	1	1-NDC 1 ch-1	2012	0	2	1	0	0	0	1	0	0	0	0	0
1	NDC 1 ch	2	1-NDC 1 ch-2	2012	2	0	0	0	0	0	0	0	0	0	0	0
1	NDC 1 ch	3	1-NDC 1 ch-3	2012	2	0	0	0	0	0	0	1	2	0	0	0
3	PDN 9i	1	3-PDN 9i-1	2012	1	0	0	0	0	2	0	0	0	0	0	0
3	PDN 9i	2	3-PDN 9i-2	2012	3	3	0	0	3	3	0	0	0	0	3	0
4	PDN 11i	1	4-PDN 11i-1	2012	3	3	0	3	5	0	0	0	0	0	0	0
4	PDN 11i	2	4-PDN 11i-2	2012	1	1	0	1	1	0	0	0	0	0	0	0
6	RGNC	1	6-RGNC-1	2012	0	2	0	2	3	0	0	2	0	0	0	0
6	RGNC	2	6-RGNC-2	2012	0	2	0	0	0	0	2	0	0	0	0	0
6	RGNC	3	6-RGNC-3	2012	1	2	0	1	0	0	0	0	0	0	0	0
6	RGNC	4	6-RGNC-4	2012	1	2	0	2	0	0	0	2	0	0	0	0
6	RGNC	5	6-RGNC-5	2012	5	2	0	0	0	0	2	0	0	0	0	0
6	RGNC	6	6-RGNC-6	2012	2	2	0	3	2	0	0	0	0	0	0	0
6	RGNC	7	6-RGNC-7	2012	2	4	0	0	0	0	0	2	0	0	0	0
6	RGNC	8	6-RGNC-8	2012	3	3	0	0	3	0	0	0	0	0	0	0
6	RGNC	9	6-RGNC-9	2012	3	3	0	0	3	0	0	0	0	0	0	0
7	I-40 2i	1	7-I-40 2i-1	2012	3	0	0	0	0	0	0	0	0	0	0	0
8	I-40 1ch	1	8-I-40 1ch-1	2012	2	3	0	0	0	0	0	0	0	0	0	0
8	I-40 1ch	2	8-I-40 1ch-2	2012	2	3	0	0	0	0	0	0	2	0	0	3
8	I-40 1ch	3	8-I-40 1ch-3	2012	3	3	0	0	0	0	3	0	0	0	0	0
8	I-40 1ch	4	8-I-40 1ch-4	2012	3	3	0	0	0	0	3	0	0	0	0	0
8	I-40 1ch	5	8-I-40 1ch-5	2012	4	4	0	0	5	0	0	0	0	0	0	0
9	I-40 2b	1	9-I-40 2b-1	2012	2	3	0	0	2	0	0	0	0	0	0	0
9	I-40 2b	2	9-I-40 2b-2	2012	2	2	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	3	9-I-40 2b-3	2012	0	2	0	0	0	0	0	0	0	0	0	0
9	I-40 2b	4	9-I-40 2b-4	2012	2	2	0	0	2	0	2	0	0	0	0	0
9	I-40 2b	5	9-I-40 2b-5	2012	2	2	0	0	0	0	1	0	0	0	0	0
9	I-40 2b	6	9-I-40 2b-6	2012	2	0	0	0	3	0	0	0	0	0	0	0
10	I-40 4b	1	10-I-40 4b-1	2012	2	3	0	0	5	0	0	0	0	0	0	0
10	I-40 4b	2	10-I-40 4b-2	2012	2	3	0	0	0	5	0	0	0	0	0	0
10	I-40 4b	3	10-I-40 4b-3	2012	5	3	0	1	3	0	0	0	0	0	0	0
10	I-40 4b	4	10-I-40 4b-4	2012	5	3	0	0	0	0	2	0	0	0	0	0
11	COA1	1	11-COA1-1	2012	0	3	0	4	4	4	0	0	0	0	0	0

MPT Site #	Site Name	Polygon	P-code	Year	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
11	COA1	2	11-COA1-2	2012	0	3	0	4	4	4	3	0	0	0	0	0
11	COA1	3	11-COA1-3	2012	0	3	3	0	5	0	3	0	0	0	0	0
12	COA2	1	12-COA2-1	2012	2	2	0	0	2	0	0	1	0	0	0	0
12	COA2	2	12-COA2-2	2012	1	1	0	0	0	0	0	1	0	0	0	0
12	COA2	3	12-COA2-3	2012	3	3	0	0	3	0	3	2	0	0	0	0
13	SDC 1i	1	13-SDC 1i-1	2012	4	3	0	0	4	0	0	0	0	0	0	0
14	SDC 5b	1	14-SDC 5b-1	2012	4	3	0	0	5	4	0	0	0	0	0	0
14	SDC 5b	2	14-SDC 5b-2	2012	3	3	0	0	5	3	0	0	0	0	0	0
16	PER 19	1	16-PER 19-1	2012	4	2	0	2	0	0	0	2	0	0	0	0
16	PER 19	2	16-PER 19-2	2012	1	0	0	0	0	0	0	0	0	0	0	0
17	PER 16	1	17-PER 16-1	2012	0	2	0	0	0	0	0	0	0	0	0	0
17	PER 16	2	17-PER 16-2	2012	2	3	0	0	0	0	3	0	0	0	0	0
17	PER 16	3	17-PER 16-3	2012	4	4	0	0	4	0	4	0	0	0	0	0
18	LP1 1	1	18-LP1 1-1	2012	2	2	0	0	0	0	0	0	0	0	0	0
18	LP1 1	2	18-LP1 1-2	2012	4	4	0	0	0	0	0	0	0	0	0	0
18	LP1 1	3	18-LP1 1-3	2012	4	2	0	0	3	0	0	0	0	0	0	0
19	LP1 3	1	19-LP1 3-1	2012	3	2	0	2	2	0	0	0	0	0	0	0
19	LP1 3	2	19-LP1 3-2	2012	4	3	0	3	3	0	4	0	0	0	0	0
20	Willie Chavez	1	20-Willie Chavez-1	2012	2	2	0	0	0	0	2	0	0	0	0	0
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2012	0	0	0	0	0	0	0	0	0	0	0	0
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2012	2	2	0	2	3	0	2	0	0	0	0	0
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2012	1	2	0	0	2	0	2	2	0	0	0	0
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2012	2	2	0	0	0	0	2	0	0	0	0	0
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2012	2	2	0	0	2	0	1	2	0	0	0	0
26	SDC 9i	1	26-SDC 9i-1	2012	0	2	0	0	0	0	0	0	0	0	0	0
26	SDC 9i	2	26-SDC 9i-2	2012	3	4	0	0	4	0	0	0	0	0	0	0

Table 5. Woody vegetation density class data. Periods in cells denote no data collected.

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Polygon Combined Value	Combined %	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
1	NDC 1 ch	1	1-NDC 1 ch-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	PDN-7i	1	2-PDN-7i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	1	3-PDN 9i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	2	3-PDN 9i-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	3	3-PDN 9i-3	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	4	3-PDN 9i-4	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	1	4-PDN 11i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	2	4-PDN 11i-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	PDN 13i	1	5-PDN 13i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	PDN 13i	2	5-PDN 13i-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Polygon Combined Value	Combined %	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
6	RGNC	1	6-RGNC-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	2	6-RGNC-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	3	6-RGNC-3	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	4	6-RGNC-4	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	5	6-RGNC-5	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	6	6-RGNC-6	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	1	10-I-40 4b-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	2	10-I-40 4b-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	3	10-I-40 4b-3	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	1	11-COA1-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	2	11-COA1-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	1	12-COA2-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	COA2	2	12-COA2-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	SDC 1i	1	13-SDC 1i-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	SDC 5b	1	14-SDC 5b-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	SDC 5b	2	14-SDC 5b-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	1	15-Los Lunas-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	2	15-Los Lunas-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	3	15-Los Lunas-3	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	4	15-Los Lunas-4	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	5	15-Los Lunas-5	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	6	15-Los Lunas-6	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	1	16-PER 19-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	2	16-PER 19-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	1	17-PER 16-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	2	17-PER 16-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	3	17-PER 16-3	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	4	17-PER 16-4	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	1	18-LP1 1-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	2	18-LP1 1-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	1	19-LP1 3-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	2	19-LP1 3-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	1	20-Willie Chavez-1	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	2	20-Willie Chavez-2	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	3	20-Willie Chavez-3	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	4	20-Willie Chavez-4	2010	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	1	1-NDC 1 ch-1	2011	d	d	31 - 70	b	d										
1	NDC 1 ch	2	1-NDC 1 ch-2	2011		b	1 - 30	b	b	b				b					
1	NDC 1 ch	3	1-NDC 1 ch-3	2011		b	1 - 30	b											
1	NDC 1 ch	4	1-NDC 1 ch-4	2011		d	31 - 70	d											
3	PDN 9i	1	3-PDN 9i-1	2011	b	b	1 - 30	b	c			b		b					
3	PDN 9i	2	3-PDN 9i-2	2011		d	31 - 70	d	d					d					

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Polygon Combined Value	Combined %	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
3	PDN 9i	3	3-PDN 9i-3	2011		b	1 - 30	b	b		b								
3	PDN 9i	4	3-PDN 9i-4	2011		b	1 - 30	b											
4	PDN 11i	1	4-PDN 11i-1	2011	b	b	1 - 30	b	b					b					
4	PDN 11i	2	4-PDN 11i-2	2011		b	1 - 30	b	c			b		b					
4	PDN 11i	3	4-PDN 11i-3	2011		b	1 - 30	b	d			b		b					
4	PDN 11i	4	4-PDN 11i-4	2011		.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	5	4-PDN 11i-5	2011		b	1 - 30	b	d		b	b		b					
6	RGNC	1	6-RGNC-1	2011	b	b	1 - 30	b	c			b		b					
6	RGNC	2	6-RGNC-2	2011		b	1 - 30	b	b		b			b					
6	RGNC	3	6-RGNC-3	2011		b	1 - 30	b	b/c			b		b					
6	RGNC	4	6-RGNC-4	2011		b	1 - 30	b	b										
6	RGNC	5	6-RGNC-5	2011		b	1 - 30	b	b					b					
6	RGNC	6	6-RGNC-6	2011		b	1 - 30	b	b		b			b					
6	RGNC	7	6-RGNC-7	2011		b	1 - 30	b	b					b					
6	RGNC	8	6-RGNC-8	2011		b	1 - 30	b	b/c		b			b					
6	RGNC	9	6-RGNC-9	2011		b	1 - 30	b	b		b								
6	RGNC	10	6-RGNC-10	2011		b	1 - 30		c		b	b							
7	I-40 2i	1	7-I-40 2i-1	2011	b	b	1 - 30	b	c		b	b							
8	I-40 1ch	1	8-I-40 1ch-1	2011	b	b	1 - 30	b	b										
8	I-40 1ch	2	8-I-40 1ch-2	2011		b	1 - 30	b	d			b	b						b
8	I-40 1ch	3	8-I-40 1ch-3	2011		b	1 - 30	b	b					b					
8	I-40 1ch	4	8-I-40 1ch-4	2011		b	1 - 30	b	d			b							
8	I-40 1ch	5	8-I-40 1ch-5	2011		c	71 - 100	b	c										
8	I-40 1ch	6	8-I-40 1ch-6	2011		c	71 - 100		c										
9	I-40 2b	1	9-I-40 2b-1	2011	b	b	1 - 30		b										
9	I-40 2b	2	9-I-40 2b-2	2011		b	1 - 30	b	c				b						
9	I-40 2b	3	9-I-40 2b-3	2011		b	1 - 30	b	b										
9	I-40 2b	4	9-I-40 2b-4	2011		b	1 - 30	b											
9	I-40 2b	5	9-I-40 2b-5	2011		b	1 - 30	b	b										
9	I-40 2b	6	9-I-40 2b-6	2011		b	1 - 30	b					b						
9	I-40 2b	7	9-I-40 2b-7	2011		b	1 - 30	b	b										
9	I-40 2b	8	9-I-40 2b-8	2011		c	71 - 100	b	c										
9	I-40 2b	9	9-I-40 2b-9	2011		b	1 - 30	b	b										
9	I-40 2b	10	9-I-40 2b-10	2011		b	1 - 30	b	b										
9	I-40 2b	11	9-I-40 2b-11	2011		b	1 - 30	b	b										
9	I-40 2b	12	9-I-40 2b-12	2011		b	1 - 30		b		b	b							
10	I-40 4b	1	10-I-40 4b-1	2011	b	b	1 - 30	b	c			b		b					
10	I-40 4b	2	10-I-40 4b-2	2011		b	1 - 30	b	b		b								
10	I-40 4b	3	10-I-40 4b-3	2011		b	1 - 30	b	c			b	b						
10	I-40 4b	4	10-I-40 4b-4	2011		b	1 - 30	b	d		b	b	b						
10	I-40 4b	5	10-I-40 4b-5	2011		b	1 - 30	b	b			b	b						
10	I-40 4b	6	10-I-40 4b-6	2011		b	1 - 30	b	d			b	b						

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Polygon Combined Value	Combined %	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
10	I-40 4b	7	10-I-40 4b-7	2011		b	1 - 30	b	d			b	b						
10	I-40 4b	8	10-I-40 4b-8	2011		b	1 - 30	d	c		b	b							
11	COA1	1	11-COA1-1	2011	b	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	COA1	2	11-COA1-2	2011		d	31 - 70	d	d					b					
11	COA1	3	11-COA1-3	2011		b	1 - 30	b	b		b								
11	COA1	4	11-COA1-4	2011		b	1 - 30	b	c		b	b		b					
12	COA2	1	12-COA2-1	2011	d	d	31 - 70	b	d										
12	COA2	2	12-COA2-2	2011		b	1 - 30	b	b										
13	SDC 1i	1	13-SDC 1i-1	2011	b	b	1 - 30	b	c			b							
13	SDC 1i	2	13-SDC 1i-2	2011		b	1 - 30	b	b			b							
16	PER 19	1	16-PER 19-1	2011	b	b	1 - 30		b										
16	PER 19	2	16-PER 19-2	2011		b	1 - 30		c			b		b					
17	PER 16	1	17-PER 16-1	2011	b	b	1 - 30	b	b										
17	PER 16	2	17-PER 16-2	2011		b	1 - 30	b	b					b					
17	PER 16	3	17-PER 16-3	2011		b	1 - 30	b	c			b							b
17	PER 16	4	17-PER 16-4	2011		b	1 - 30	b	b					b					
17	PER 16	5	17-PER 16-5	2011		c	71 - 100	b	c					c					
17	PER 16	6	17-PER 16-6	2011		b	1 - 30	b	b			d		b					
18	LP1 1	1	18-LP1 1-1	2011	d	c	71 - 100	b	c										
18	LP1 1	2	18-LP1 1-2	2011		b	1 - 30	b	b			b		b					
19	LP1 3	1	19-LP1 3-1	2011	b	b	1 - 30	b	c		b			b					
19	LP1 3	2	19-LP1 3-2	2011		b	1 - 30	b	b		b	b		b					
20	Willie Chavez	1	20-Willie Chavez-1	2011	b	b	1 - 30	d	b		b								
20	Willie Chavez	2	20-Willie Chavez-2	2011		b	1 - 30	b	c					b					
20	Willie Chavez	3	20-Willie Chavez-3	2011		b	1 - 30	b	b					b					
20	Willie Chavez	4	20-Willie Chavez-4	2011		b	1 - 30				b								
20	Willie Chavez	5	20-Willie Chavez-5	2011		b	1 - 30	b			b								
20	Willie Chavez	6	20-Willie Chavez-6	2011		d	31 - 70		d		b								
23	Bel 5	1	23-Bel 5-1	2011	b	b	1 - 30	b	d					b					
23	Bel 5	2	23-Bel 5-2	2011		b	1 - 30	b	b		b								
24	STR 4	1	24-STR 4-1	2011	b	b	1 - 30	b	b										
24	STR 4	2	24-STR 4-2	2011		b	1 - 30		b										
24	STR 4	3	24-STR 4-3	2011		b	1 - 30	b	b		b	b							
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2011	b	b	1 - 30		b			b							
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2011		b	1 - 30	b	b		b								
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2011		b	1 - 30	b											
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2011		b	1 - 30	b	b		b	b							
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2011		b	1 - 30		b		b	b							
25	SDC 9b/5b	6	25-SDC 9b/5b-6	2011		b	1 - 30	b	b			b							
25	SDC 9b/5b	7	25-SDC 9b/5b-7	2011		b	1 - 30		b		b								
25	SDC 9b/5b	8	25-SDC 9b/5b-8	2011		b	1 - 30	b	b										
25	SDC 9b/5b	9	25-SDC 9b/5b-9	2011		.	.	.	.	.	.	.	.	.	.	.	.	.	.

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Polygon Combined Value	Combined %	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
26	SDC 9i	1	26-SDC 9i-1	2011	b	b	1 - 30	b	b			b							
26	SDC 9i	2	26-SDC 9i-2	2011		b	1 - 30	b	d			b							
26	SDC 9i	3	26-SDC 9i-3	2011		b	1 - 30		b					b					
26	SDC 9i	4	26-SDC 9i-4	2011		d	31 - 70	b	d										
1	NDC 1 ch	1	1-NDC 1 ch-1	2012	d	d	31 - 70	d											
1	NDC 1 ch	2	1-NDC 1 ch-2	2012		c	71 - 100	c											
1	NDC 1 ch	3	1-NDC 1 ch-3	2012		b	1 - 30	b											
3	PDN 9i	1	3-PDN 9i-1	2012	c	d	31 - 70	d											
3	PDN 9i	2	3-PDN 9i-2	2012		c	71 - 100	c											
4	PDN 11i	1	4-PDN 11i-1	2012	c	c	71 - 100	c											
4	PDN 11i	2	4-PDN 11i-2	2012		b	1 - 30	b											
6	RGNC	1	6-RGNC-1	2012	c	c	71 - 100	c											
6	RGNC	2	6-RGNC-2	2012		c	71 - 100	c	.	.	.			.					
6	RGNC	3	6-RGNC-3	2012		b	1 - 30	b											
6	RGNC	4	6-RGNC-4	2012		d	31 - 70	d											
6	RGNC	5	6-RGNC-5	2012		b	1 - 30	b											
6	RGNC	6	6-RGNC-6	2012		b	1 - 30	b											
6	RGNC	7	6-RGNC-7	2012		d	31 - 70	d											
6	RGNC	8	6-RGNC-8	2012		c	71 - 100	c											
6	RGNC	9	6-RGNC-9	2012		c	71 - 100	c											
7	I-40 2i	1	7-I-40 2i-1	2012	c	c	71 - 100	c											
8	I-40 1ch	1	8-I-40 1ch-1	2012	d	b	1 - 30	b											
8	I-40 1ch	2	8-I-40 1ch-2	2012		c	71 - 100	c											
8	I-40 1ch	3	8-I-40 1ch-3	2012		d	31 - 70	d											
8	I-40 1ch	4	8-I-40 1ch-4	2012		d	31 - 70	d											
8	I-40 1ch	5	8-I-40 1ch-5	2012		d	31 - 70	d											
9	I-40 2b	1	9-I-40 2b-1	2012	d	c	71 - 100	c											
9	I-40 2b	2	9-I-40 2b-2	2012		d	31 - 70	d											
9	I-40 2b	3	9-I-40 2b-3	2012		b	1 - 30	b											
9	I-40 2b	4	9-I-40 2b-4	2012		b	1 - 30	b											
9	I-40 2b	5	9-I-40 2b-5	2012		c	71 - 100	c											
9	I-40 2b	6	9-I-40 2b-6	2012		b	1 - 30	b											
10	I-40 4b	1	10-I-40 4b-1	2012	c	d	31 - 70	d											
10	I-40 4b	2	10-I-40 4b-2	2012		c	71 - 100	c											
10	I-40 4b	3	10-I-40 4b-3	2012		c	71 - 100	c											
10	I-40 4b	4	10-I-40 4b-4	2012		d	31 - 70	d											
11	COA1	1	11-COA1-1	2012	d	d	31 - 70	d											
11	COA1	2	11-COA1-2	2012		d	31 - 70	d											
11	COA1	3	11-COA1-3	2012		d	31 - 70	d											
12	COA2	1	12-COA2-1	2012	d	d	31 - 70	d											
12	COA2	2	12-COA2-2	2012		b	1 - 30	b											
12	COA2	3	12-COA2-3	2012		c	71 - 100	c											

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Polygon Combined Value	Combined %	C	CW	NMO	SC	RO	SE	GW	SW	Amorpha	Rhus	TH	MB
13	SDC 1i	1	13-SDC 1i-1	2012	d	d	31 - 70	d											
14	SDC 5b	1	14-SDC 5b-1	2012	d	d	31 - 70	d											
14	SDC 5b	2	14-SDC 5b-2	2012		d	31 - 70	d											
16	PER 19	1	16-PER 19-1	2012	d	d	31 - 70	d											
16	PER 19	2	16-PER 19-2	2012		b	1 - 30	b											
17	PER 16	1	17-PER 16-1	2012	d	b	1 - 30	b											
17	PER 16	2	17-PER 16-2	2012		d	31 - 70	d											
17	PER 16	3	17-PER 16-3	2012		d	31 - 70	d											
18	LP1 1	1	18-LP1 1-1	2012	d	b	1 - 30	b											
18	LP1 1	2	18-LP1 1-2	2012		d	31 - 70	d											
18	LP1 1	3	18-LP1 1-3	2012		c	71 - 100	c											
19	LP1 3	1	19-LP1 3-1	2012	d	d	31 - 70	d											
19	LP1 3	2	19-LP1 3-2	2012		d	31 - 70	d											
20	Willie Chavez	1	20-Willie Chavez-1	2012	b	b	1 - 30	b											
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2012	b	b	1 - 30	b											
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2012		d	31 - 70	d											
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2012		b	1 - 30	b											
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2012		b	1 - 30	b											
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2012		.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	SDC 9i	1	26-SDC 9i-1	2012	c	b	1 - 30	a,b											
26	SDC 9i	2	26-SDC 9i-2	2012		c	71 - 100	c											

Table 6. Herbaceous Vegetation Cover Data (periods in cells denote no data collected)

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
1	NDC 1 ch	1	1-NDC 1 ch-1	2010	.	.	.	.	.	.	.	.	.	
2	PDN-7i	1	2-PDN-7i-1	2010	.	.	.	.	.	.	.	.	.	
3	PDN 9i	1	3-PDN 9i-1	2010	.	.	.	.	.	.	.	.	.	
3	PDN 9i	2	3-PDN 9i-2	2010	.	.	.	.	.	.	.	.	.	
3	PDN 9i	3	3-PDN 9i-3	2010	.	.	.	.	.	.	.	.	.	
3	PDN 9i	4	3-PDN 9i-4	2010	0	0	0	0	0	0	0	0	0	no veg - just a bare sandbar
4	PDN 11i	1	4-PDN 11i-1	2010	.	.	.	.	.	.	.	.	.	
4	PDN 11i	2	4-PDN 11i-2	2010	.	.	.	.	.	.	.	.	.	
5	PDN 13i	1	5-PDN 13i-1	2010	.	.	.	.	.	.	.	.	.	
5	PDN 13i	2	5-PDN 13i-2	2010	.	.	.	.	.	.	.	.	.	
6	RGNC	1	6-RGNC-1	2010	.	.	.	.	.	.	.	.	.	

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
6	RGNC	2	6-RGNC-2	2010	.	.	.	.	.	.	.	.	.	
6	RGNC	3	6-RGNC-3	2010	.	.	.	.	.	.	.	.	.	
6	RGNC	4	6-RGNC-4	2010	.	.	.	.	.	.	.	.	.	
6	RGNC	5	6-RGNC-5	2010	.	.	.	.	.	.	.	.	.	
6	RGNC	6	6-RGNC-6	2010	.	.	.	.	.	.	.	.	.	
10	I-40 4b	1	10-I-40 4b-1	2010	.	.	.	.	.	.	.	.	.	
10	I-40 4b	2	10-I-40 4b-2	2010	.	.	.	.	.	.	.	.	.	
10	I-40 4b	3	10-I-40 4b-3	2010	.	.	.	.	.	.	.	.	.	
11	COA1	1	11-COA1-1	2010	.	.	.	.	.	.	.	.	.	
11	COA1	2	11-COA1-2	2010	.	.	.	.	.	.	.	.	.	
12	COA2	1	12-COA2-1	2010	.	.	.	.	.	.	.	.	.	
12	COA2	2	12-COA2-2	2010	.	.	.	.	.	.	.	.	.	
13	SDC 1i	1	13-SDC 1i-1	2010	.	.	.	.	.	.	.	.	.	
14	SDC 5b	1	14-SDC 5b-1	2010	.	.	.	.	.	.	.	.	.	
14	SDC 5b	2	14-SDC 5b-2	2010	.	.	.	.	.	.	.	.	.	
15	Los Lunas	1	15-Los Lunas-1	2010	.	.	.	.	.	.	.	.	.	sedges, salt grass, phragmites, scratchgrass
15	Los Lunas	2	15-Los Lunas-2	2010	.	.	.	.	.	.	.	.	.	
15	Los Lunas	3	15-Los Lunas-3	2010	.	.	.	.	.	.	.	.	.	
15	Los Lunas	4	15-Los Lunas-4	2010	.	.	.	.	.	.	.	.	.	
15	Los Lunas	5	15-Los Lunas-5	2010	.	.	.	.	.	.	.	.	.	dead and down Cs, saltgrash, bulrush, cocklebur, ravenna grass, clematis, sweet clover, amorpha, equisetum, ricegrass, foxtail barley, perennial pepperweed
15	Los Lunas	6	15-Los Lunas-6	2010	.	.	.	.	.	.	.	.	.	salt grass, sedge grass
16	PER 19	1	16-PER 19-1	2010	.	.	.	.	.	.	.	.	.	herbaceous
16	PER 19	2	16-PER 19-2	2010	.	.	.	.	.	.	.	.	.	herbaceous
17	PER 16	1	17-PER 16-1	2010	.	.	.	.	.	.	.	.	.	
17	PER 16	2	17-PER 16-2	2010	.	.	.	.	.	.	.	.	.	
17	PER 16	3	17-PER 16-3	2010	.	.	.	.	.	.	.	.	.	
17	PER 16	4	17-PER 16-4	2010	.	.	.	.	.	.	.	.	.	
18	LP1 1	1	18-LP1 1-1	2010	.	.	.	.	.	.	.	.	.	
18	LP1 1	2	18-LP1 1-2	2010	.	.	.	.	.	.	.	.	.	
19	LP1 3	1	19-LP1 3-1	2010	.	.	.	.	.	.	.	.	.	
19	LP1 3	2	19-LP1 3-2	2010	.	.	.	.	.	.	.	.	.	
20	Willie Chavez	1	20-Willie Chavez-1	2010	.	.	.	.	.	.	.	.	.	
20	Willie Chavez	2	20-Willie Chavez-2	2010	.	.	.	.	.	.	.	.	.	
20	Willie Chavez	3	20-Willie Chavez-3	2010	.	.	.	.	.	.	.	.	.	

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
20	Willie Chavez	4	20-Willie Chavez-4	2010	.	.	.	.	.	.	.	.	.	these are spoil berms that were planted with the bosque mix but none of that survived- all dense kochia now
1	NDC 1 ch	1	1-NDC 1 ch-1	2011	23	5	0	0	0	10	4	4	0	
1	NDC 1 ch	2	1-NDC 1 ch-2	2011	18	10	0	0	0	4	0	4	0	white licorice
1	NDC 1 ch	3	1-NDC 1 ch-3	2011	14	4	0	0	0	0	0	10	0	sweet clover
1	NDC 1 ch	4	1-NDC 1 ch-4	2011	18	5	4	0	0	0	4	5	0	goats head
3	PDN 9i	1	3-PDN 9i-1	2011	.	.	.	.	.	.	.	.	.	
3	PDN 9i	2	3-PDN 9i-2	2011	4	4	0	0	0	0	0	0	0	
3	PDN 9i	3	3-PDN 9i-3	2011	8	4	0	0	0	0	0	4	0	sweet clover, wild licorice, RM bee plant
3	PDN 9i	4	3-PDN 9i-4	2011	53	4	0	0	0	4	5	40	0	rushes - weed - (mostly) smart weed, clover baby C's
4	PDN 11i	1	4-PDN 11i-1	2011	25	0	0	0	0	0	0	25	0	horseweed, licorice - baby C/s
4	PDN 11i	2	4-PDN 11i-2	2011	4	0	0	0	0	0	0	4	0	
4	PDN 11i	3	4-PDN 11i-3	2011	9	0	0	4	0	5	0	0	0	
4	PDN 11i	4	4-PDN 11i-4	2011	10	5	0	0	0	0	0	5	0	hookers evening primrose, purple aster, sweet clover
4	PDN 11i	5	4-PDN 11i-5	2011	4	0	0	0	0	0	0	4	0	primrose
6	RGNC	1	6-RGNC-1	2011	23	4	0	0	0	0	4	15	0	other weed: sweet clover - under CW
6	RGNC	2	6-RGNC-2	2011	4	0	0	0	0	0	0	4	0	other weed: sweet clover
6	RGNC	3	6-RGNC-3	2011	4	0	0	0	0	0	0	4	0	other weed: sweet clover
6	RGNC	4	6-RGNC-4	2011	69	0	0	0	0	4	0	15	50	other weed: sweet clover dead <5, height class 1, density b
6	RGNC	5	6-RGNC-5	2011	4	0	0	0	0	0	0	4	0	other weed: sweet clover
6	RGNC	6	6-RGNC-6	2011	8	4	0	0	0	0	0	4	0	otherweed: sweet clover other plants: blanket flower, sunflower, bladder pod
6	RGNC	7	6-RGNC-7	2011	4	0	0	0	0	0	0	4	0	other weed: sweet clover
6	RGNC	8	6-RGNC-8	2011	18	4	0	0	0	4	0	10	0	other weed: Rocky Mountain bee plant, wild licorice, blanket flower, bladder pod, sweet clover, mares tail, bindweed, alfalfa, common sunflower
6	RGNC	9	6-RGNC-9	2011	114	10	0	0	0	4	90	10	0	other weed: smartweed, licorice
6	RGNC	10	6-RGNC-10	2011	14	0	0	4	0	0	0	10	0	
7	I-40 2i	1	7-I-40 2i-1	2011	16	4	4	0	0	4	0	4	0	
8	I-40 1ch	1	8-I-40 1ch-1	2011	8	0	0	0	0	0	4	4	0	T of H resprouts on banks
8	I-40 1ch	2	8-I-40 1ch-2	2011	13	0	0	4	0	4	0	5	0	elm resprouts on bank other weeds: sweet clover, milkweed
8	I-40 1ch	3	8-I-40 1ch-3	2011	14	0	0	0	0	10	0	4	0	
8	I-40 1ch	4	8-I-40 1ch-4	2011	22	4	0	0	0	4	10	4	0	

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
8	I-40 1ch	5	8-I-40 1ch-5	2011	5	0	0	0	0	0	0	5	0	dead 5%
8	I-40 1ch	6	8-I-40 1ch-6	2011	8	0	0	0	4	0	0	4	0	other weed: milkweed
9	I-40 2b	1	9-I-40 2b-1	2011	16	4	0	0	0	4	4	4	0	
9	I-40 2b	2	9-I-40 2b-2	2011	22	4	4	0	0	4	0	10	0	sunflower, sweet clover, russian thistle
9	I-40 2b	3	9-I-40 2b-3	2011	12	4	0	0	0	4	0	4	0	other weed: sweet clover
9	I-40 2b	4	9-I-40 2b-4	2011	8	4	0	0	0	4	0	0	0	other weed: sweet clover
9	I-40 2b	5	9-I-40 2b-5	2011	12	4	0	0	0	4	0	4	0	other weed: sunflower, sweet clover
9	I-40 2b	6	9-I-40 2b-6	2011	19	4	0	0	0	5	0	10	0	other weed: sweet clover
9	I-40 2b	7	9-I-40 2b-7	2011	19	4	0	0	0	5	0	10	0	sweet clover, aster, bindweed, sunflower
9	I-40 2b	8	9-I-40 2b-8	2011	23	5	0	0	0	4	4	10	0	sweet clover, sunflower, wild licorice
9	I-40 2b	9	9-I-40 2b-9	2011	15	0	0	0	0	10	0	5	0	sunflower
9	I-40 2b	10	9-I-40 2b-10	2011	18	0	0	0	0	4	0	10	4	sweet clover, sunflower
9	I-40 2b	11	9-I-40 2b-11	2011	12	4	0	0	0	4	0	4	0	sunflower
9	I-40 2b	12	9-I-40 2b-12	2011	5	0	0	0	0	0	0	5	0	90% tumbleweed other weed: russian thistle
10	I-40 4b	1	10-I-40 4b-1	2011	4	0	0	0	0	0	0	0	4	
10	I-40 4b	2	10-I-40 4b-2	2011	15	0	0	0	0	0	0	15	0	other weed: sweet clover, wild licorice
10	I-40 4b	3	10-I-40 4b-3	2011	4	0	0	0	0	0	0	4	0	other weed: sweet clover catalpa tree = 1
10	I-40 4b	4	10-I-40 4b-4	2011	8	4	0	0	0	0	0	4	0	other weed: sweet clover, milkweed
10	I-40 4b	5	10-I-40 4b-5	2011	4	0	0	0	0	0	0	4	0	other weed: sweet clover
10	I-40 4b	6	10-I-40 4b-6	2011	5	0	0	0	0	0	0	5	0	
10	I-40 4b	7	10-I-40 4b-7	2011	4	0	0	0	0	0	0	4	0	dead- sunflower
10	I-40 4b	8	10-I-40 4b-8	2011	4	0	0	0	0	0	0	4	0	other weed: Hookers evening primrose
11	COA1	1	11-COA1-1	2011	65	5	0	0	0	20	0	40	0	other weed: wild licorice, sunflower, sweet clover, yellow aster
11	COA1	2	11-COA1-2	2011	14	0	0	0	0	4	0	10	0	other grass: saltgrass other weed: yellow aster, fleabane daisy, sweet clover
11	COA1	3	11-COA1-3	2011	5	0	0	0	0	0	0	5	0	other weed: sweet clover, yellow aster
11	COA1	4	11-COA1-4	2011	10	0	0	0	0	0	0	10	0	other weed: sweet clover, yellow aster
12	COA2	1	12-COA2-1	2011	30	5	0	0	0	0	0	25	0	other weed: horseweed, yellow aster, indian hemp, sweet clover, sunflower
12	COA2	2	12-COA2-2	2011	18	4	4	0	0	0	0	10	0	other weed: sweet clover, indian hemp
13	SDC 1i	1	13-SDC 1i-1	2011	14	0	0	0	0	10	0	4	0	other weed: indian hemp, aster
13	SDC 1i	2	13-SDC 1i-2	2011	60	0	0	0	0	5	0	55	0	other weed: sunflower, primrose, horseweed, sweeet clover, wild licorice
16	PER 19	1	16-PER 19-1	2011	100	20	0	0	0	30	0	50	0	other weed: smartweed, sunflower, primrose, horseweed
16	PER 19	2	16-PER 19-2	2011	49	4	5	0	0	30	0	10	0	other weed: horseweed, indian hemp
17	PER 16	1	17-PER 16-1	2011	20	5	0	0	0	5	0	10	0	other weed: russian thistle, horseweed, smartweed, sweet clover

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
17	PER 16	2	17-PER 16-2	2011	100	10	0	0	0	10	0	80	0	other weed: sweet clover, smartweed, horseweed, sunflower, kochia, evening primrose other grass: saltgrass
17	PER 16	3	17-PER 16-3	2011	15	5	0	0	0	0	0	10	0	other weed: sweet clover, horsweed, primrose, grape
17	PER 16	4	17-PER 16-4	2011	75	20	0	0	0	15	0	40	0	other weed: horsweed, sunflower
17	PER 16	5	17-PER 16-5	2011	34	10	4	0	0	5	0	15	0	other weed: smartweed, horsweeed, dock, sunflower, primrose
17	PER 16	6	17-PER 16-6	2011	24	0	0	0	0	4	0	20	0	other weed: sunflower
18	LP1 1	1	18-LP1 1-1	2011	25	10	0	0	0	5	0	10	0	other weed: sunflower, smartweed, primrose, clover
18	LP1 1	2	18-LP1 1-2	2011	19	0	4	0	0	5	0	10	0	other weed: sunflower, horseweed, clover, primrose
19	LP1 3	1	19-LP1 3-1	2011	25	10	0	0	0	5	0	10	0	other weed: smartweed, sunflower, primrose, clover
19	LP1 3	2	19-LP1 3-2	2011	50	5	0	0	0	10	0	35	0	other weed: horsweed, sunflower, primrose, kochia, russian thistle, clover dead = cocklbur
20	Willie Chavez	1	20-Willie Chavez-1	2011	15	0	0	0	0	5	0	10	0	other weed: sunflower (mostly), horsweed other grass: saltgrass
20	Willie Chavez	2	20-Willie Chavez-2	2011	20	0	0	0	0	10	0	10	0	other weed: primrose, horsegrass, sweet clover other grass: saltgrass
20	Willie Chavez	3	20-Willie Chavez-3	2011	15	5	0	0	0	10	0	0	0	russian thistle, kochia, sweet clover, sunflower other grass: saltgrass
20	Willie Chavez	4	20-Willie Chavez-4	2011	10	0	0	0	0	5	0	5	0	other weed: kochia, yerba mansa other grass: saltgrass dead = kochia (mostly), salt cedar
20	Willie Chavez	5	20-Willie Chavez-5	2011	19	0	0	0	0	15	0	4	0	other grass: saltgrass other weed: kochia
20	Willie Chavez	6	20-Willie Chavez-6	2011	14	0	0	0	0	5	4	5	0	other weed: sunflower, kochia, yerba mansa
23	Bel 5	1	23-Bel 5-1	2011	13	4	0	0	0	4	0	5	0	sweet clover, sunflower, kochia (very little), russian thistle (very little), primrose, indian hemp
23	Bel 5	2	23-Bel 5-2	2011	85	30	0	0	0	5	20	30	0	other weed: sweet clover, primrose, sunflower, horseweed
24	STR 4	1	24-STR 4-1	2011	90	40	0	0	0	0	0	50	0	other weed: sweet clover (mostly), primrose, sunflower, horseweed
24	STR 4	2	24-STR 4-2	2011	94	80	0	0	0	5	5	4	0	other weed: sunflower, horseweed, sweet cloverother rush/sedge: bandalong edge

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
24	STR 4	3	24-STR 4-3	2011	12	0	4	0	0	4	0	4	0	other weed: sunflower sweet cloverother brass: bamboo grass
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2011	94	4	0	10	0	35	25	20	0	other weed: smartweed, horseweed other grass: sprangle top, witchgrass other rush/sedge: 3-square, Torreya, Cyperus erythrorhizos
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2011	94	0	0	0	0	4	90	0	0	both rushes and sedges
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2011	84	0	0	0	0	30	50	4	0	other weed: smartweed, kochia, russian thistle other grass: saltgrass other rush/sedge: cyperus erythrorhizos
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2011	90	5	0	0	0	30	25	30	0	other weed: smartweed, sunflower, horseweed
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2011	69	4	0	0	0	30	10	25	0	other weed: nightshade, sunflower, horseweed, wild licorice, mint
25	SDC 9b/5b	6	25-SDC 9b/5b-6	2011	94	4	0	0	0	5	5	80	0	
25	SDC 9b/5b	7	25-SDC 9b/5b-7	2011	75	0	0	0	0	25	25	25	0	other weed: sunflower, bindweed, mullin, goathead other rush/sedge: cyperus erythrorhizos
25	SDC 9b/5b	8	25-SDC 9b/5b-8	2011	74	0	0	0	0	0	70	4	0	
25	SDC 9b/5b	9	25-SDC 9b/5b-9	2011	89	4	0	0	0	50	10	25	0	other weed: smartweed, horseweed other grass: knotgrass - Paspulus distichum, witchgrass - Particum capillane
26	SDC 9i	1	26-SDC 9i-1	2011	85	5	0	0	0	15	40	25	0	other weed: aster, smartweed, sunflower
26	SDC 9i	2	26-SDC 9i-2	2011	40	0	0	0	0	0	20	20	0	other weed: sunflower, licorice, sweet clover
26	SDC 9i	3	26-SDC 9i-3	2011	0									
26	SDC 9i	4	26-SDC 9i-4	2011	75	0	0	0	0	70	0	5	0	other weed: sweet clover
1	NDC 1 ch	1	1-NDC 1 ch-1	2012	108	50	0	0	0	0	4	50	4	other weed: sweet clover other species: red top, solidago, aster
1	NDC 1 ch	2	1-NDC 1 ch-2	2012	100	40	0	0	0	0	0	60	0	other weed: sweet clover other species: sunflower, solidago, equretum
1	NDC 1 ch	3	1-NDC 1 ch-3	2012	100	80	0	0	0	0	0	20	0	other weed: sweet clover other species: sunflower, solidago
3	PDN 9i	1	3-PDN 9i-1	2012	104	50	0	0	0	20	15	15	4	other species: sunflower
3	PDN 9i	2	3-PDN 9i-2	2012	100	20	0	20	0	30	0	0	30	other species: sunflower
4	PDN 11i	1	4-PDN 11i-1	2012	100	20	0	70	0	0	0	10	0	other species: sweet clover, sunflower
4	PDN 11i	2	4-PDN 11i-2	2012	104	50	0	0	0	30	5	15	4	other weed: smartweed, sweet clover other grass: witch grass other rush/sedge: three-square
6	RGNC	1	6-RGNC-1	2012	100	0	0	15	0	0	0	70	15	other herb: yellow flowered weeds

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
														other species: RG (Indian grass?), wild licorice, yellow flowered forbs
6	RGNC	2	6-RGNC-2	2012	104	10	0	0	0	0	10	4	80	other weed: goldenrod?, aster other rush/sedge: cosmo brush? (can't read writing), 3-square, Taleys Rush (can't read writing)
6	RGNC	3	6-RGNC-3	2012	100	10	0	0	0	5	5	35	45	other weed: WL, sweet clover other grass: ? - sample, scratchgrass-muhlenbergia other rush/sedge: SM - smartweed,
6	RGNC	4	6-RGNC-4	2012	100	80	0	10	0	0	0	10	0	other weed: SC-sweet clover, goad head
6	RGNC	5	6-RGNC-5	2012	100	20	0	0	0	0	0	0	80	other herb: GR, white trumpet-like (photo)
6	RGNC	6	6-RGNC-6	2012	100	0	0	0	0	20	0	80	0	other weed: russian thistle
6	RGNC	7	6-RGNC-7	2012	100	0	0	0	0	90	0	0	10	other grass: salt grass, alkali sacaton, snakeweed other herb: solidago, sweet clover, aster
6	RGNC	8	6-RGNC-8	2012	100	0	0	0	0	0	0	0	100	other herb: sweet clover, alfalfa other species: solidago
6	RGNC	9	6-RGNC-9	2012	100	5	0	0	0	90	0	0	5	other herb: alkali sacaton, sweet clover, solidago
7	I-40 2i	1	7-I-40 2i-1	2012	100	0	0	0	0	50	0	0	50	other herb: solidago
8	I-40 1ch	1	8-I-40 1ch-1	2012	55	10	5	0	0	0	0	0	40	other herb: smartweed, solidago, sweet clover 40% bare ground for understory
8	I-40 1ch	2	8-I-40 1ch-2	2012	100	5	0	0	0	10	0	0	85	other herb: smartweed, sweet clover, solidago, sunflower
8	I-40 1ch	3	8-I-40 1ch-3	2012	100	5	0	0	0	75	0	0	20	other herb: sunflower, aster
8	I-40 1ch	4	8-I-40 1ch-4	2012	100	0	0	0	0	90	0	0	10	other grass: nutsedge? Other herb: sunflower
8	I-40 1ch	5	8-I-40 1ch-5	2012	100	0	0	65	0	0	0	0	35	other herb: milkweed, solidago
9	I-40 2b	1	9-I-40 2b-1	2012	104	5	4	0	0	10	5	0	80	other herb: sunflower, solidago, milkweed, sweet clover, aster, smartweed
9	I-40 2b	2	9-I-40 2b-2	2012	100	10	0	0	0	5	0	0	85	other herb: sunflower, sweet clover, Hooker primrose, solidago, wild licorice? (unk. Photo #24), aster
9	I-40 2b	3	9-I-40 2b-3	2012	100	0	0	0	0	10	0	60	30	other herb: sunflower, coreopsis, aster
9	I-40 2b	4	9-I-40 2b-4	2012	100	5	0	0	0	5	0	0	90	other herb: sweet clover, sunflower, aster
9	I-40 2b	5	9-I-40 2b-5	2012	100	50	0	0	0	5	5	0	40	other grass: alkali sacaton? Photo 30 other herb: solidago, sweet clover, sunflower
9	I-40 2b	6	9-I-40 2b-6	2012	100	0	0	0	0	0	0	100	0	other herb: sunflower, globe mallow, aster other weed: 50% russian thistle, 50% other

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
10	I-40 4b	1	10-I-40 4b-1	2012	100	5	0	0	0	0	0	0	95	other herb: sweet clover, goldenrod (mostly), American licorice
10	I-40 4b	2	10-I-40 4b-2	2012	100	0	0	5	0	0	0	20	75	other weed: tumbleweed other herb: Height %: 2 10 Common sunflower 2 15 Narrowleaf goosefoot 2 15 White sweetclover 1 35 Goldenrod
10	I-40 4b	3	10-I-40 4b-3	2012	100	0	0	0	0	0	0	50	50	other weed: sample 1 (in book), goldenweed, groundsel (in book) other herb: American licorice
10	I-40 4b	4	10-I-40 4b-4	2012	100	0	0	5	0	0	0	10	85	other weed: goldenweed other herb: Height % 2 15 Wester Golden top 1 25 Groundsel 2 45 Foxtail prairie clover
11	COA1	1	11-COA1-1	2012	100	0	0	0	0	10	30	60	0	other weed: tumblweed, aster other rush/sedge: rush
11	COA1	2	11-COA1-2	2012	100	0	0	0	0	50	0	50	0	other weed: Groundsel other grass: Western wheatgrass
11	COA1	3	11-COA1-3	2012	100	0	0	0	0	0	20	80	0	other weed: Groundsel
12	COA2	1	12-COA2-1	2012	100	0	0	0	0	10	50	15	25	other weed: sweetclover other herb: purple aster other rush/sedge: common rush / phrag
12	COA2	2	12-COA2-2	2012	104	4	0	0	0	10	0	10	80	other weed: sweetclover, unknown (photo), phragmys other herb: purple aster
12	COA2	3	12-COA2-3	2012	100	0	0	0	0	0	0	20	80	other weed: sweetclover other herb: 60% purple aster, 20% other
13	SDC 1i	1	13-SDC 1i-1	2012	100	0	0	50	0	0	0	50	0	other weed: Groundsel
14	SDC 5b	1	14-SDC 5b-1	2012	100	0	0	0	0	0	20	80	0	other weed: Groundsel, goldenrod, sunflower, aster, tumbleweed other rush/sedge: Common reed
14	SDC 5b	2	14-SDC 5b-2	2012	90	0	0	40	0	0	0	50	0	other weed: groundsel, goldenrod, sunflower, aster, tumbleweed
16	PER 19	1	16-PER 19-1	2012	100	0	30	0	0	40	0	30	0	other wed: horseweed other grass: sanddropseed
16	PER 19	2	16-PER 19-2	2012	125	70	0	0	0	15	30	5	5	other weed: sweet clover other grass: barnyard grass other rush/sedge: cyperus other herb: vine mesquite, brom vape,

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
														prairie clover
17	PER 16	1	17-PER 16-1	2012	100	40	0	0	0	50	0	10	0	other weed: sweet clover, evening primrose, horseweed other grass: love grass
17	PER 16	2	17-PER 16-2	2012	104	4	0	0	0	50	0	50	0	other weed: horseweed, purple aster
17	PER 16	3	17-PER 16-3	2012	100	5	0	0	0	0	10	85	0	other weed: horseweed, euthamia other rush/sedge: carex
18	LP1 1	1	18-LP1 1-1	2012	104	10	4	0	0	30	0	60	0	other weed: sunflower, horseweed other grass: sand drop seed, salt grass
18	LP1 1	2	18-LP1 1-2	2012	100	0	5	0	0	5	50	40	0	other weed: euthamia, aster other grass: salt grass
18	LP1 1	3	18-LP1 1-3	2012	108	4	0	4	0	20	0	80	0	other weed: horseweed (50%), euthamia, goldenrod, sunflower, sweet clover other grass: sand drop seed
19	LP1 3	1	19-LP1 3-1	2012	108	4	0	4	0	30	0	70	0	other weed: sunflower, euthamia, horseweed, russian thistle (~5%), purple aster, sweet clover, goldenrod, white aster other grass: sand drop seed, salt grass
19	LP1 3	2	19-LP1 3-2	2012	100	10	0	0	0	5	5	75	5	other grass: salt grass other herb: kochia
20	Willie Chavez	1	20-Willie Chavez-1	2012	100	20	0	0	0	15	0	65	0	other weeds: sunflower, euthamia, purple aster, horse weed, sweet clover, kochia other grasses: sandropseed, alkali sacaton
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2012	100	5	0	0	0	60	10	25	0	other weed: aster other grass: sacaton, tall grass, red
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2012	100	0	0	0	0	5	5	90	0	other weed: sunflower, kochia, aster other grass: tall grass other rush/sedge: cattail
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2012	100	0	0	0	0	5	5	90	0	other weed: sunflower, sweet clover, aster other grass: tall grass other rush/sedge: cattail
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2012	100	0	0	0	0	20	70	10	0	other weed: asteracea - yellow other grass: tall grass other rush/sedge: 3-square
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2012	100	5	0	0	0	25	0	70	0	other weed: aster other grass: sporobolus (witchgrass w/ white), sacaton
26	SDC 9i	1	26-SDC 9i-1	2012	100	5	0	50	0	0	0	45	0	other weed: sweed clover, sunflower

MPT Site #	Site Name	Polygon	P-code	Year	TOTAL	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb	Other Plants Listed
26	SDC 9i	2	26-SDC 9i-2	2012	100	5	0	0	0	0	50	45	0	other weed: sweet clover, sunflower, purple aster, yellow, (smartweed) other rush/sedge: common rush / phrag

Table 7. Herbaceous Height Class Data (periods in cells denote no data collected)

MPT Site #	Site Name	Polygon	P-code	Year	Total Herbaceous Median Height	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other hHerb
1	NDC 1 ch	1	1-NDC 1 ch-1	2010	0	1	0	0	0	0	0	0	0
2	PDN-7i	1	2-PDN-7i-1	2010	0	1	0	0	0	0	1	0	1
3	PDN 9i	1	3-PDN 9i-1	2010	0	1	0	0	0	0	0	0	0
3	PDN 9i	2	3-PDN 9i-2	2010	0	0	0	0	0	0	0	0	0
3	PDN 9i	3	3-PDN 9i-3	2010	0	1	0	0	0	0	1	0	0
3	PDN 9i	4	3-PDN 9i-4	2010	.	.	.	.	.	.	.	.	.
4	PDN 11i	1	4-PDN 11i-1	2010	0	1	0	0	1	0	1	0	0
4	PDN 11i	2	4-PDN 11i-2	2010	0	0	0	0	0	0	0	0	1
5	PDN 13i	1	5-PDN 13i-1	2010	0	0	0	1	1	0	1	0	0
5	PDN 13i	2	5-PDN 13i-2	2010	0	0	0	0	0	0	1	0	0
6	RGNC	1	6-RGNC-1	2010	0	1	0	0	0	0	1	0	0
6	RGNC	2	6-RGNC-2	2010	0	0	0	0	0	0	0	0	0
6	RGNC	3	6-RGNC-3	2010	0	0	0	0	0	0	0	0	0
6	RGNC	4	6-RGNC-4	2010	0	0	0	0	0	0	0	0	0
6	RGNC	5	6-RGNC-5	2010	0	0	0	0	0	1	1	0	0
6	RGNC	6	6-RGNC-6	2010	0	1	0	0	0	1	1	0	0
10	I-40 4b	1	10-I-40 4b-1	2010	0	0	0	0	0	1	0	0	0
10	I-40 4b	2	10-I-40 4b-2	2010	0	0	1	1	0	1	0	0	0
10	I-40 4b	3	10-I-40 4b-3	2010	0	0	0	0	0	0	0	0	0
11	COA1	1	11-COA1-1	2010	0	1	0	0	0	0	0	0	0
11	COA1	2	11-COA1-2	2010	0	1	0	0	0	0	0	0	0
12	COA2	1	12-COA2-1	2010	0	1	0	1	0	0	0	0	0
12	COA2	2	12-COA2-2	2010	0	1	1	0	0	0	0	0	1
13	SDC 1i	1	13-SDC 1i-1	2010	0	0	0	1	0	0	1	0	0
14	SDC 5b	1	14-SDC 5b-1	2010	0	0	0	0	0	0	0	0	0
14	SDC 5b	2	14-SDC 5b-2	2010	0	0	0	0	0	0	0	0	0
15	Los Lunas	1	15-Los Lunas-1	2010	.	.	.	.	.	.	.	.	.
15	Los Lunas	2	15-Los Lunas-2	2010	0	0	0	0	1	0	0	0	0
15	Los Lunas	3	15-Los Lunas-3	2010	0	0	0	0	1	0	0	0	0
15	Los Lunas	4	15-Los Lunas-4	2010	0	1	0	0	0	0	0	0	0
15	Los Lunas	5	15-Los Lunas-5	2010	1	1	0	1	1	1	1	0	0
15	Los Lunas	6	15-Los Lunas-6	2010	0	0	0	0	0	1	1	0	0
16	PER 19	1	16-PER 19-1	2010	.	.	.	.	.	.	.	.	.

MPT Site #	Site Name	Polygon	P-code	Year	Total Herbaceous Median Height	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other hHerb
16	PER 19	2	16-PER 19-2	2010	.	.	.	.	.	.	.	.	.
17	PER 16	1	17-PER 16-1	2010	0	0	0	0	0	0	0	0	0
17	PER 16	2	17-PER 16-2	2010	0	0	0	0	0	0	0	0	0
17	PER 16	3	17-PER 16-3	2010	0	0	0	0	0	0	0	0	0
17	PER 16	4	17-PER 16-4	2010	0	0	0	0	0	0	0	0	0
18	LP1 1	1	18-LP1 1-1	2010	0	0	0	0	0	0	0	0	1
18	LP1 1	2	18-LP1 1-2	2010	0	0	0	0	0	0	0	0	1
19	LP1 3	1	19-LP1 3-1	2010	0	0	0	0	0	0	0	0	0
19	LP1 3	2	19-LP1 3-2	2010	0	0	0	0	0	0	0	0	1
20	Willie Chavez	1	20-Willie Chavez-1	2010	0	1	0	0	0	1	0	0	0
20	Willie Chavez	2	20-Willie Chavez-2	2010	0	0	0	0	0	0	0	0	1
20	Willie Chavez	3	20-Willie Chavez-3	2010	0	0	0	0	0	1	0	0	0
20	Willie Chavez	4	20-Willie Chavez-4	2010	0	0	0	0	0	0	0	0	1
1	NDC 1 ch	1	1-NDC 1 ch-1	2011	1	1	0	0	0	1	1	1	0
1	NDC 1 ch	2	1-NDC 1 ch-2	2011	0	1	0	0	0	1	0	1	0
1	NDC 1 ch	3	1-NDC 1 ch-3	2011	0	1	0	0	0	0	0	1	0
1	NDC 1 ch	4	1-NDC 1 ch-4	2011	1	1	1	0	0	0	1	1	0
3	PDN 9i	1	3-PDN 9i-1	2011	.	.	.	.	.	.	.	.	.
3	PDN 9i	2	3-PDN 9i-2	2011	0	1	0	0	0	0	0	0	0
3	PDN 9i	3	3-PDN 9i-3	2011	0	1	0	0	0	0	0	1	0
3	PDN 9i	4	3-PDN 9i-4	2011	1	1	0	0	0	1	1	1	0
4	PDN 11i	1	4-PDN 11i-1	2011	0	0	0	0	0	0	0	1	0
4	PDN 11i	2	4-PDN 11i-2	2011	0	0	0	0	0	0	0	1	0
4	PDN 11i	3	4-PDN 11i-3	2011	0	0	0	3	0	1	0	0	0
4	PDN 11i	4	4-PDN 11i-4	2011	0	0	0	0	0	0	0	0	0
4	PDN 11i	5	4-PDN 11i-5	2011	0	0	0	0	0	0	0	1	0
6	RGNC	1	6-RGNC-1	2011	0	1	0	0	0	0	1	1	0
6	RGNC	2	6-RGNC-2	2011	0	0	0	0	0	0	0	1	0
6	RGNC	3	6-RGNC-3	2011	0	0	0	0	0	0	0	1	0
6	RGNC	4	6-RGNC-4	2011	0	0	0	0	0	1	0	1	1
6	RGNC	5	6-RGNC-5	2011	0	0	0	0	0	0	0	1	0
6	RGNC	6	6-RGNC-6	2011	0	0	0	0	0	0	0	1	0
6	RGNC	7	6-RGNC-7	2011	0	0	0	0	0	0	0	1	0
6	RGNC	8	6-RGNC-8	2011	0	0	0	0	0	0	0	1	0
6	RGNC	9	6-RGNC-9	2011	1	1	0	0	0	1	1	1	0
6	RGNC	10	6-RGNC-10	2011	0	0	0	3	0	0	0	1	0
7	I-40 2i	1	7-I-40 2i-1	2011	1	1	1	0	0	1	0	1	0
8	I-40 1ch	1	8-I-40 1ch-1	2011	0	0	0	0	0	0	0	0	0
8	I-40 1ch	2	8-I-40 1ch-2	2011	0	0	0	3	0	2	0	1	0
8	I-40 1ch	3	8-I-40 1ch-3	2011	0	0	0	0	0	1	0	1	0
8	I-40 1ch	4	8-I-40 1ch-4	2011	1	1	0	0	0	1	1	1	0

MPT Site #	Site Name	Polygon	P-code	Year	Total Herbaceous Median Height	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other hHerb
8	I-40 1ch	5	8-I-40 1ch-5	2011	0	0	0	0	0	0	0	1	0
8	I-40 1ch	6	8-I-40 1ch-6	2011	0	0	0	0	0	0	0	0	0
9	I-40 2b	1	9-I-40 2b-1	2011	1	1	0	0	0	1	1	1	0
9	I-40 2b	2	9-I-40 2b-2	2011	0	0	1	0	0	1	0	2	0
9	I-40 2b	3	9-I-40 2b-3	2011	0	1	0	0	0	1	0	1	0
9	I-40 2b	4	9-I-40 2b-4	2011	0	1	0	0	0	1	0	0	0
9	I-40 2b	5	9-I-40 2b-5	2011	0	1	0	0	0	1	0	1	0
9	I-40 2b	6	9-I-40 2b-6	2011	0	1	0	0	0	1	0	1	0
9	I-40 2b	7	9-I-40 2b-7	2011	0	1	0	0	0	1	0	1	0
9	I-40 2b	8	9-I-40 2b-8	2011	1	1	0	0	0	1	1	1	0
9	I-40 2b	9	9-I-40 2b-9	2011	0	0	0	0	0	1	0	1	0
9	I-40 2b	10	9-I-40 2b-10	2011	0	0	0	0	0	1	0	1	1
9	I-40 2b	11	9-I-40 2b-11	2011	0	1	0	0	0	1	0	1	0
9	I-40 2b	12	9-I-40 2b-12	2011	0	0	0	0	0	0	0	1	0
10	I-40 4b	1	10-I-40 4b-1	2011	0	0	0	0	0	0	0	0	0
10	I-40 4b	2	10-I-40 4b-2	2011	0	0	0	0	0	0	0	1	0
10	I-40 4b	3	10-I-40 4b-3	2011	0	0	0	0	0	0	0	1	0
10	I-40 4b	4	10-I-40 4b-4	2011	0	1	0	0	0	0	0	1	0
10	I-40 4b	5	10-I-40 4b-5	2011	0	0	0	0	0	0	0	1	0
10	I-40 4b	6	10-I-40 4b-6	2011	0	0	0	0	0	0	0	1	0
10	I-40 4b	7	10-I-40 4b-7	2011	0	0	0	0	0	0	0	1	0
10	I-40 4b	8	10-I-40 4b-8	2011	0	0	0	0	0	0	0	1	0
11	COA1	1	11-COA1-1	2011	0	0	0	0	0	0	0	0	0
11	COA1	2	11-COA1-2	2011	0	0	0	0	0	1	0	1	0
11	COA1	3	11-COA1-3	2011	0	0	0	0	0	0	0	1	0
11	COA1	4	11-COA1-4	2011	0	0	0	0	0	0	0	1	0
12	COA2	1	12-COA2-1	2011	0	1	0	0	0	0	0	1	0
12	COA2	2	12-COA2-2	2011	0	1	1	0	0	0	0	1	0
13	SDC 1i	1	13-SDC 1i-1	2011	0	0	0	0	0	1	0	1	0
13	SDC 1i	2	13-SDC 1i-2	2011	0	0	0	0	0	1	0	1	0
16	PER 19	1	16-PER 19-1	2011	0	2	0	0	0	2	0	2	0
16	PER 19	2	16-PER 19-2	2011	1	1	1	0	0	1	0	1	0
17	PER 16	1	17-PER 16-1	2011	0	1	0	0	0	1	0	1	0
17	PER 16	2	17-PER 16-2	2011	0	1	0	0	0	1	0	1	0
17	PER 16	3	17-PER 16-3	2011	0	1	0	0	0	0	0	1	0
17	PER 16	4	17-PER 16-4	2011	0	2	0	0	0	2	0	2	0
17	PER 16	5	17-PER 16-5	2011	1	1	1	0	0	1	0	1	0
17	PER 16	6	17-PER 16-6	2011	0	0	0	0	0	1	0	3	0
18	LP1 1	1	18-LP1 1-1	2011	0	1	0	0	0	1	0	1	0
18	LP1 1	2	18-LP1 1-2	2011	0	0	0	0	0	1	0	1	0
19	LP1 3	1	19-LP1 3-1	2011	0	1	0	0	0	1	0	1	0
19	LP1 3	2	19-LP1 3-2	2011	0	1	0	0	0	1	0	1	0
20	Willie Chavez	1	20-Willie Chavez-1	2011	0	0	0	0	0	0	0	2	0
20	Willie	2	20-Willie	2011	0	0	0	0	0	1	0	1	0

MPT Site #	Site Name	Polygon	P-code	Year	Total Herbaceous Median Height	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other hHerb
	Chavez		Chavez-2										
20	Willie Chavez	3	20-Willie Chavez-3	2011	0	1	0	0	0	1	0	0	0
20	Willie Chavez	4	20-Willie Chavez-4	2011	0	0	0	0	0	1	0	1	0
20	Willie Chavez	5	20-Willie Chavez-5	2011	0	0	0	0	0	1	0	1	0
20	Willie Chavez	6	20-Willie Chavez-6	2011	0	0	0	0	0	1	1	1	0
23	Bel 5	1	23-Bel 5-1	2011	0	1	0	0	0	1	0	1	0
23	Bel 5	2	23-Bel 5-2	2011	1	2	0	0	0	2	2	2	0
24	STR 4	1	24-STR 4-1	2011	0	1	0	0	0	0	0	2	0
24	STR 4	2	24-STR 4-2	2011	0	1	0	0	0	1	1	0	0
24	STR 4	3	24-STR 4-3	2011	0	0	1	0	0	1	0	1	0
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2011	1	1	0	1	0	1	1	1	0
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2011	0	0	0	0	0	1	1	0	0
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2011	0	0	0	0	0	1	1	1	0
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2011	1	1	0	0	0	1	1	1	0
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2011	1	1	0	0	0	1	1	1	0
25	SDC 9b/5b	6	25-SDC 9b/5b-6	2011	1	1	0	0	0	1	1	1	0
25	SDC 9b/5b	7	25-SDC 9b/5b-7	2011	0	0	0	0	0	1	1	1	0
25	SDC 9b/5b	8	25-SDC 9b/5b-8	2011	0	0	0	0	0	0	1	1	0
25	SDC 9b/5b	9	25-SDC 9b/5b-9	2011	1	1	0	0	0	1	1	1	0
26	SDC 9i	1	26-SDC 9i-1	2011	1	1	0	0	0	1	1	1	0
26	SDC 9i	2	26-SDC 9i-2	2011	0	0	0	0	0	1	0	1	0
26	SDC 9i	3	26-SDC 9i-3	2011	0	0	0	0	0	0	0	0	0
26	SDC 9i	4	26-SDC 9i-4	2011	0	0	0	0	0	2	0	1	0
1	NDC 1 ch	1	1-NDC 1 ch-1	2012	1	1	0	0	0	0	1	1	1
1	NDC 1 ch	2	1-NDC 1 ch-2	2012	0	1	0	0	0	0	0	1	0
1	NDC 1 ch	3	1-NDC 1 ch-3	2012	0	1	0	0	0	0	0	1	0
3	PDN 9i	1	3-PDN 9i-1	2012	0	0	0	0	0	0	0	0	0
3	PDN 9i	2	3-PDN 9i-2	2012	0	0	0	0	0	0	0	0	0
4	PDN 11i	1	4-PDN 11i-1	2012	0	1	0	3	0	0	0	1	0
4	PDN 11i	2	4-PDN 11i-2	2012	1	1	0	0	0	1	1	1	1
6	RGNC	1	6-RGNC-1	2012	0	0	0	4	0	0	0	1	1
6	RGNC	2	6-RGNC-2	2012	1	1	0	0	0	0	2	2	2

MPT Site #	Site Name	Polygon	P-code	Year	Total Herbaceous Median Height	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other hHerb
6	RGNC	3	6-RGNC-3	2012	1	1	0	0	0	0	1	2	2
6	RGNC	4	6-RGNC-4	2012	0	1	0	4	0	0	0	1	0
6	RGNC	5	6-RGNC-5	2012	0	1	0	0	0	0	0	0	1
6	RGNC	6	6-RGNC-6	2012	0	0	0	0	0	1	0	1	0
6	RGNC	7	6-RGNC-7	2012	0	0	0	0	0	1	0	0	1
6	RGNC	8	6-RGNC-8	2012	0	0	0	0	0	0	0	0	2
6	RGNC	9	6-RGNC-9	2012	0	0	0	0	0	1	0	0	1
7	I-40 2i	1	7-I-40 2i-1	2012	0	0	0	0	0	2	0	0	2
8	I-40 1ch	1	8-I-40 1ch-1	2012	0	0	0	0	0	0	0	0	0
8	I-40 1ch	2	8-I-40 1ch-2	2012	0	1	0	1	0	0	0	0	1
8	I-40 1ch	3	8-I-40 1ch-3	2012	0	0	0	0	0	0	0	0	0
8	I-40 1ch	4	8-I-40 1ch-4	2012	0	0	0	0	0	1	0	0	1
8	I-40 1ch	5	8-I-40 1ch-5	2012	0	0	0	3	0	0	0	0	2
9	I-40 2b	1	9-I-40 2b-1	2012	0	0	0	0	0	0	0	0	0
9	I-40 2b	2	9-I-40 2b-2	2012	0	1	0	0	0	1	0	0	1
9	I-40 2b	3	9-I-40 2b-3	2012	0	0	0	0	0	1	0	0	1
9	I-40 2b	4	9-I-40 2b-4	2012	0	1	0	0	0	2	0	0	1
9	I-40 2b	5	9-I-40 2b-5	2012	0	1	0	0	0	0	1	0	1
9	I-40 2b	6	9-I-40 2b-6	2012	0	0	0	0	0	0	0	1	0
10	I-40 4b	1	10-I-40 4b-1	2012	0	1	0	0	0	0	0	0	2
10	I-40 4b	2	10-I-40 4b-2	2012	0	0	0	0	0	0	0	0	0
10	I-40 4b	3	10-I-40 4b-3	2012	0	0	0	0	0	0	0	1	1
10	I-40 4b	4	10-I-40 4b-4	2012	0	0	0	4	0	0	0	2	0
11	COA1	1	11-COA1-1	2012	0	0	0	0	0	2	2	2	0
11	COA1	2	11-COA1-2	2012	0	0	0	0	0	1	0	1	0
11	COA1	3	11-COA1-3	2012	0	0	0	0	0	0	2	2	0
12	COA2	1	12-COA2-1	2012	1	0	0	0	0	1	2	1	2
12	COA2	2	12-COA2-2	2012	1	1	0	0	0	1	0	1	1
12	COA2	3	12-COA2-3	2012	0	0	0	0	0	0	1	1	1
13	SDC 1i	1	13-SDC 1i-1	2012	0	0	0	3	0	0	0	2	0
14	SDC 5b	1	14-SDC 5b-1	2012	0	0	0	0	0	0	2	2	0
14	SDC 5b	2	14-SDC 5b-2	2012	0	0	0	3	0	0	0	2	0
16	PER 19	1	16-PER 19-1	2012	0	0	1	0	0	1	0	1	0
16	PER 19	2	16-PER 19-2	2012	0	1	0	0	0	1	0	1	0
17	PER 16	1	17-PER 16-1	2012	0	1	0	0	0	1	0	1	0
17	PER 16	2	17-PER 16-2	2012	0	0	0	0	0	0	0	0	0
17	PER 16	3	17-PER 16-3	2012	0	1	0	0	0	0	1	1	0
18	LP1 1	1	18-LP1 1-1	2012	0	1	0	0	0	1	0	1	0
18	LP1 1	2	18-LP1 1-2	2012	0	0	0	0	0	0	0	0	0
18	LP1 1	3	18-LP1 1-3	2012	0	1	0	0	0	1	0	1	0
19	LP1 3	1	19-LP1 3-1	2012	0	0	0	0	0	1	0	1	0
19	LP1 3	2	19-LP1 3-2	2012	1	1	0	0	0	1	1	1	1
20	Willie Chavez	1	20-Willie Chavez-1	2012	0	1	0	0	0	1	0	2	0

MPT Site #	Site Name	Polygon	P-code	Year	Total Herbaceous Median Height	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other hHerb
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2012	0	0	0	0	0	0	0	0	0
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2012	0	0	0	0	0	2	1	1	0
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2012	0	0	0	0	0	1	1	1	0
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2012	0	0	0	0	0	0	0	0	0
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2012	0	1	0	0	0	1	0	1	0
26	SDC 9i	1	26-SDC 9i-1	2012	0	1	0	2	0	0	0	1	0
26	SDC 9i	2	26-SDC 9i-2	2012	0	1	0	0	0	0	3	2	0

Table 8. Herbaceous Vegetation Density Class Data (periods in cells denote no data collected)

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Combined Value	Combined %	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb
1	NDC 1 ch	1	1-NDC 1 ch-1	2010	.	.	.	.	.	.	.	.	.	.	.
2	PDN-7i	1	2-PDN-7i-1	2010	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	1	3-PDN 9i-1	2010	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	2	3-PDN 9i-2	2010	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	3	3-PDN 9i-3	2010	.	.	.	.	.	.	.	.	.	.	.
3	PDN 9i	4	3-PDN 9i-4	2010	.	.	.	.	.	.	.	.	.	.	.
4	PDN 11i	1	4-PDN 11i-1	2010	.	.	.	.	.	.	.	.	.		.
4	PDN 11i	2	4-PDN 11i-2	2010	.	.	.	.	.	.	.	.	.	.	.
5	PDN 13i	1	5-PDN 13i-1	2010	.	.	.	.	.	.	.	.	.	.	.
5	PDN 13i	2	5-PDN 13i-2	2010	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	1	6-RGNC-1	2010	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	2	6-RGNC-2	2010	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	3	6-RGNC-3	2010	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	4	6-RGNC-4	2010	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	5	6-RGNC-5	2010	.	.	.	.	.	.	.	.	.	.	.
6	RGNC	6	6-RGNC-6	2010	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	1	10-I-40 4b-1	2010	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	2	10-I-40 4b-2	2010	.	.	.	.	.	.	.	.	.	.	.
10	I-40 4b	3	10-I-40 4b-3	2010	.	.	.	.	.	.	.	.	.	.	.
11	COA1	1	11-COA1-1	2010	.	.	.	.	.	.	.	.	.	.	.
11	COA1	2	11-COA1-2	2010	.	.	.	.	.	.	.	.	.	.	.
12	COA2	1	12-COA2-1	2010	.	.	.	.	.	.	.	.	.	.	.
12	COA2	2	12-COA2-2	2010	.	.	.	.	.	.	.	.	.	.	.

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Combined Value	Combined %	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb
13	SDC 1i	1	13-SDC 1i-1	2010	.	.	.	.	.	.	.	.	.	.	.
14	SDC 5b	1	14-SDC 5b-1	2010	.	.	.	.	.	.	.	.	.	.	.
14	SDC 5b	2	14-SDC 5b-2	2010	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	1	15-Los Lunas-1	2010	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	2	15-Los Lunas-2	2010	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	3	15-Los Lunas-3	2010	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	4	15-Los Lunas-4	2010	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	5	15-Los Lunas-5	2010	.	.	.	.	.	.	.	.	.	.	.
15	Los Lunas	6	15-Los Lunas-6	2010	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	1	16-PER 19-1	2010	.	.	.	.	.	.	.	.	.	.	.
16	PER 19	2	16-PER 19-2	2010	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	1	17-PER 16-1	2010	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	2	17-PER 16-2	2010	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	3	17-PER 16-3	2010	.	.	.	.	.	.	.	.	.	.	.
17	PER 16	4	17-PER 16-4	2010	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	1	18-LP1 1-1	2010	.	.	.	.	.	.	.	.	.	.	.
18	LP1 1	2	18-LP1 1-2	2010	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	1	19-LP1 3-1	2010	.	.	.	.	.	.	.	.	.	.	.
19	LP1 3	2	19-LP1 3-2	2010	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	1	20-Willie Chavez-1	2010	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	2	20-Willie Chavez-2	2010	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	3	20-Willie Chavez-3	2010	.	.	.	.	.	.	.	.	.	.	.
20	Willie Chavez	4	20-Willie Chavez-4	2010	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	1	1-NDC 1 ch-1	2011	B	b	1 - 30	b				b	b	b	
1	NDC 1 ch	2	1-NDC 1 ch-2	2011		b	1 - 30	b				b		b	
1	NDC 1 ch	3	1-NDC 1 ch-3	2011		b	1 - 30	b						b	
1	NDC 1 ch	4	1-NDC 1 ch-4	2011		b	1 - 30	b	b				b	b	
3	PDN 9i	1	3-PDN 9i-1	2011	B	b	1 - 30	b							
3	PDN 9i	2	3-PDN 9i-2	2011		b	1 - 30	b							
3	PDN 9i	3	3-PDN 9i-3	2011		b	1 - 30	b						b	
3	PDN 9i	4	3-PDN 9i-4	2011		b	1 - 30	b				b	c	d	
4	PDN 11i	1	4-PDN 11i-1	2011	B	b	1 - 30							b	
4	PDN 11i	2	4-PDN 11i-2	2011		b	1 - 30							b	
4	PDN 11i	3	4-PDN 11i-3	2011		b	1 - 30			b		b			
4	PDN 11i	4	4-PDN 11i-4	2011		.	.	.	.	.	.	.	.	.	.
4	PDN 11i	5	4-PDN 11i-5	2011		b	1 - 30							b	
6	RGNC	1	6-RGNC-1	2011	B	b	1 - 30	b					b	b	
6	RGNC	2	6-RGNC-2	2011		b	1 - 30							b	

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Combined Value	Combined %	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb
6	RGNC	3	6-RGNC-3	2011		b	1 - 30							b	
6	RGNC	4	6-RGNC-4	2011		b	1 - 30					b		b	b
6	RGNC	5	6-RGNC-5	2011		b	1 - 30							b	
6	RGNC	6	6-RGNC-6	2011		b	1 - 30							b	
6	RGNC	7	6-RGNC-7	2011		b	1 - 30							b	
6	RGNC	8	6-RGNC-8	2011		b	1 - 30							b	
6	RGNC	9	6-RGNC-9	2011		b	1 - 30	b				b	c	b	
6	RGNC	10	6-RGNC-10	2011		b	1 - 30			b				b	
7	I-40 2i	1	7-I-40 2i-1	2011	B	b	1 - 30	b	b			b		b	
8	I-40 1ch	1	8-I-40 1ch-1	2011		.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	2	8-I-40 1ch-2	2011		b	1 - 30			b		b		b	
8	I-40 1ch	3	8-I-40 1ch-3	2011	B	b	1 - 30					b		b	
8	I-40 1ch	4	8-I-40 1ch-4	2011		b	1 - 30	b				b	d	b	
8	I-40 1ch	5	8-I-40 1ch-5	2011		b	1 - 30							b	
8	I-40 1ch	6	8-I-40 1ch-6	2011		.	.	.	.	.	.	.	.	.	.
9	I-40 2b	1	9-I-40 2b-1	2011		b	1 - 30	b				b	b	b	
9	I-40 2b	2	9-I-40 2b-2	2011		b	1 - 30		b			b		b	
9	I-40 2b	3	9-I-40 2b-3	2011		b	1 - 30	b				b		b	
9	I-40 2b	4	9-I-40 2b-4	2011		b	1 - 30	b				b			
9	I-40 2b	5	9-I-40 2b-5	2011		b	1 - 30	b				b		b	
9	I-40 2b	6	9-I-40 2b-6	2011	B	b	1 - 30	b				b		b	
9	I-40 2b	7	9-I-40 2b-7	2011		b	1 - 30	b				b		b	
9	I-40 2b	8	9-I-40 2b-8	2011		b	1 - 30	b				b	b	b	
9	I-40 2b	9	9-I-40 2b-9	2011		b	1 - 30					b		b	
9	I-40 2b	10	9-I-40 2b-10	2011		b	1 - 30					b		b	b
9	I-40 2b	11	9-I-40 2b-11	2011		b	1 - 30	b				b		b	
9	I-40 2b	12	9-I-40 2b-12	2011		b	1 - 30							b	
10	I-40 4b	1	10-I-40 4b-1	2011		.	.	.	.	.	.	.	.	.	.
10	I-40 4b	2	10-I-40 4b-2	2011		b	1 - 30							b	
10	I-40 4b	3	10-I-40 4b-3	2011		b	1 - 30							b	
10	I-40 4b	4	10-I-40 4b-4	2011	B	b	1 - 30	b						b	
10	I-40 4b	5	10-I-40 4b-5	2011		b	1 - 30							b	
10	I-40 4b	6	10-I-40 4b-6	2011		b	1 - 30							b	
10	I-40 4b	7	10-I-40 4b-7	2011		b	1 - 30							b	
10	I-40 4b	8	10-I-40 4b-8	2011		b	1 - 30							b	
11	COA1	1	11-COA1-1	2011		.	.	.	.	.	.	.	.	.	.
11	COA1	2	11-COA1-2	2011	B	b	1 - 30					b		b	
11	COA1	3	11-COA1-3	2011		b	1 - 30							b	
11	COA1	4	11-COA1-4	2011		b	1 - 30							b	
12	COA2	1	12-COA2-1	2011	B	b	1 - 30	b						b	
12	COA2	2	12-COA2-2	2011		b	1 - 30	b	b					b	

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Combined Value	Combined %	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb
13	SDC 1i	1	13-SDC 1i-1	2011	B	b	1 - 30					b		b	
13	SDC 1i	2	13-SDC 1i-2	2011		b	1 - 30					b		b	
16	PER 19	1	16-PER 19-1	2011	D	d	31 - 70	b				c	d		
16	PER 19	2	16-PER 19-2	2011		b	1 - 30	b	b			b		b	
17	PER 16	1	17-PER 16-1	2011	B	b	1 - 30	b				b		b	
17	PER 16	2	17-PER 16-2	2011		b	1 - 30	b				b		d	
17	PER 16	3	17-PER 16-3	2011		b	1 - 30	b						b	
17	PER 16	4	17-PER 16-4	2011		b	1 - 30	b				b		d	
17	PER 16	5	17-PER 16-5	2011		b	1 - 30	b	b			b		b	
17	PER 16	6	17-PER 16-6	2011		b	1 - 30					b		b	
18	LP1 1	1	18-LP1 1-1	2011	B	b	1 - 30	b				b		b	
18	LP1 1	2	18-LP1 1-2	2011		b	1 - 30					b		b	
19	LP1 3	1	19-LP1 3-1	2011	B	b	1 - 30	b				b		b	
19	LP1 3	2	19-LP1 3-2	2011		b	1 - 30	b				b		b	
20	Willie Chavez	1	20-Willie Chavez-1	2011	B	b	1 - 30							b	
20	Willie Chavez	2	20-Willie Chavez-2	2011		b	1 - 30					b		b	
20	Willie Chavez	3	20-Willie Chavez-3	2011		b	1 - 30	b				b			
20	Willie Chavez	4	20-Willie Chavez-4	2011		b	1 - 30					b		b	
20	Willie Chavez	5	20-Willie Chavez-5	2011		b	1 - 30					b		b	
20	Willie Chavez	6	20-Willie Chavez-6	2011		b	1 - 30					b	b	b	
23	Bel 5	1	23-Bel 5-1	2011	D	b	1 - 30	b				b		b	
23	Bel 5	2	23-Bel 5-2	2011		d	31 - 70	d				b	d	d	
24	STR 4	1	24-STR 4-1	2011	B	c	71 - 100	c						c	
24	STR 4	2	24-STR 4-2	2011		b	1 - 30	c				b	b		
24	STR 4	3	24-STR 4-3	2011		b	1 - 30		b			b		b	
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2011	D	b	1 - 30	b		b		b	b	b	
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2011		c	71 - 100					b	c		
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2011		b	1 - 30					b	b	b	
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2011		d	31 - 70	b				d	d	d	
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2011		b	1 - 30	b				b	b	b	
25	SDC	6	25-SDC 9b/5b-6	2011		b	1 - 30	b				b	b	c	

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Combined Value	Combined %	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb
	9b/5b														
25	SDC 9b/5b	7	25-SDC 9b/5b-7	2011		b	1 - 30					b	b	b	
25	SDC 9b/5b	8	25-SDC 9b/5b-8	2011		d	31 - 70						d	b	
25	SDC 9b/5b	9	25-SDC 9b/5b-9	2011		d	31 - 70	b				d	b	d	
26	SDC 9i	1	26-SDC 9i-1	2011	B	b	1 - 30	b				b	b	b	
26	SDC 9i	2	26-SDC 9i-2	2011		b	1 - 30					b		b	
26	SDC 9i	3	26-SDC 9i-3	2011		.	.	.	.	.	.	.	.	.	.
26	SDC 9i	4	26-SDC 9i-4	2011		c	71 - 100					c		b	
1	NDC 1 ch	1	1-NDC 1 ch-1	2012	.	.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	2	1-NDC 1 ch-2	2012		.	.	.	.	.	.	.	.	.	.
1	NDC 1 ch	3	1-NDC 1 ch-3	2012		.	.	.	.	.	.	.	.	.	.
3	PDN 9i	1	3-PDN 9i-1	2012	C	c	71 - 100	c							
3	PDN 9i	2	3-PDN 9i-2	2012		c	71 - 100	c							
4	PDN 11i	1	4-PDN 11i-1	2012	D	b	1 - 30	b							
4	PDN 11i	2	4-PDN 11i-2	2012		c	71 - 100	c							
6	RGNC	1	6-RGNC-1	2012	D	.	.	***	.	.	.	.	.	.	.
6	RGNC	2	6-RGNC-2	2012		c	71 - 100	c							
6	RGNC	3	6-RGNC-3	2012		c	71 - 100	c							
6	RGNC	4	6-RGNC-4	2012		b	1 - 30	b							
6	RGNC	5	6-RGNC-5	2012		b	1 - 30	b							
6	RGNC	6	6-RGNC-6	2012		b	1 - 30	b							
6	RGNC	7	6-RGNC-7	2012		b	1 - 30	b							
6	RGNC	8	6-RGNC-8	2012		c	71 - 100	c							
6	RGNC	9	6-RGNC-9	2012		d	31 - 70	d							
7	I-40 2i	1	7-I-40 2i-1	2012	C	c	71 - 100	c							
8	I-40 1ch	1	8-I-40 1ch-1	2012	B	d	31 - 70	d							
8	I-40 1ch	2	8-I-40 1ch-2	2012		b	1 - 30	b							
8	I-40 1ch	3	8-I-40 1ch-3	2012		.	.	.	.	.	.	.	.	.	.
8	I-40 1ch	4	8-I-40 1ch-4	2012		b	1 - 30	b							
8	I-40 1ch	5	8-I-40 1ch-5	2012		.	.	.	.	.	.	.	.	.	.
9	I-40 2b	1	9-I-40 2b-1	2012	D	.	.	.	.	.	.	.	.	.	.
9	I-40 2b	2	9-I-40 2b-2	2012		d	31 - 70	d							
9	I-40 2b	3	9-I-40 2b-3	2012		d	31 - 70	d							
9	I-40 2b	4	9-I-40 2b-4	2012		d	31 - 70	d							
9	I-40 2b	5	9-I-40 2b-5	2012		c	71 - 100	c							
9	I-40 2b	6	9-I-40 2b-6	2012		d	31 - 70	d							
10	I-40 4b	1	10-I-40 4b-1	2012	D	c	71 - 100	c							
10	I-40 4b	2	10-I-40 4b-2	2012		c	71 - 100	c							
10	I-40 4b	3	10-I-40 4b-3	2012		b	1 - 30	b							

MPT Site #	Site Name	Polygon	P-code	Year	Site Combined Value	Combined Value	Combined %	Cocklebur	Equisetum	Ravenna Grass	Bulrush	Other Grass	Other Rush/Sedge	Other Weed	Other Herb
10	I-40 4b	4	10-I-40 4b-4	2012		d	31 - 70	d							
11	COA1	1	11-COA1-1	2012	B	b	1 - 30	b							
11	COA1	2	11-COA1-2	2012		b	1 - 30	b							
11	COA1	3	11-COA1-3	2012		b	1 - 30	b							
12	COA2	1	12-COA2-1	2012	D	d	31 - 70	d							
12	COA2	2	12-COA2-2	2012		d	31 - 70	d							
12	COA2	3	12-COA2-3	2012		d	31 - 70	d							
13	SDC 1i	1	13-SDC 1i-1	2012	B	b	1 - 30	b							
14	SDC 5b	1	14-SDC 5b-1	2012	C	c	71 - 100	c							
14	SDC 5b	2	14-SDC 5b-2	2012		c	71 - 100	c							
16	PER 19	1	16-PER 19-1	2012	D	d	31 - 70	d							
16	PER 19	2	16-PER 19-2	2012		d	31 - 70	d							
17	PER 16	1	17-PER 16-1	2012	B	b	1 - 30	b							
17	PER 16	2	17-PER 16-2	2012		b	1 - 30	b							
17	PER 16	3	17-PER 16-3	2012		d	31 - 70	d							
18	LP1 1	1	18-LP1 1-1	2012	D	b	1 - 30	b							
18	LP1 1	2	18-LP1 1-2	2012		d	31 - 70	d							
18	LP1 1	3	18-LP1 1-3	2012		c	71 - 100	c							
19	LP1 3	1	19-LP1 3-1	2012	C	c	71 - 100	c							
19	LP1 3	2	19-LP1 3-2	2012		c	71 - 100	c							
20	Willie Chavez	1	20-Willie Chavez-1	2012	C	c	71 - 100	c							
25	SDC 9b/5b	1	25-SDC 9b/5b-1	2012	C	c	71 - 100	c							
25	SDC 9b/5b	2	25-SDC 9b/5b-2	2012		.	.	.	.	.	.	.	.	.	.
25	SDC 9b/5b	3	25-SDC 9b/5b-3	2012		c	71 - 100	c							
25	SDC 9b/5b	4	25-SDC 9b/5b-4	2012		c	71 - 100	c							
25	SDC 9b/5b	5	25-SDC 9b/5b-5	2012		.	.	.	.	.	.	.	.	.	.
26	SDC 9i	1	26-SDC 9i-1	2012	D	b	1 - 30	a,b							
26	SDC 9i	2	26-SDC 9i-2	2012		c	71 - 100	c							

Table 9. Vegetation Polygon Dimensions across All Sites in 2011 and 2012

Site	Polygon	Acres	Square Meters	Notes
2011				
12	A	0.511955	2071.816222	
1	C	0.138945	562.293554	
2	A	0.501158	2028.122366	not surveyed in 2011
3	C	0.916497	3708.947335	
4	E	1.383350	5598.242896	
5	A	0.170307	689.210648	not surveyed in 2011
6	C	0.583646	2361.941101	
10	H	1.111072	4496.365081	
11	C	0.149678	605.728739	
13	B	0.632754	2560.673499	
14	A	0.832974	3370.938310	not surveyed in 2011
15	A	39.170539	158518.180577	not surveyed in 2011
16	B	0.832909	3370.675110	
18	B	1.017059	4115.910227	
20	A	4.556300	18438.766410	
19	B	1.460532	5910.585802	
17	E	0.576189	2331.762195	
1	A	0.028673	116.034852	
1	B	0.031185	126.201446	
1	D	0.129127	522.561825	
3	D	0.310010	1254.570301	
3	B	0.073466	297.307590	
3	A	0.012875	52.102202	
3	B	0.035156	142.271776	
3	A	0.014309	57.906126	
3	B	0.031773	128.579926	
3	A	0.020211	81.790182	
3	B	0.024803	100.375940	
3	A	0.014742	59.660853	
3	B	0.016253	65.775738	
3	A	0.011880	48.075061	
3	A	0.014696	59.471368	
3	B	0.032560	131.764572	
4	A	0.051380	207.929620	
4	B	1.252989	5070.686471	
4	C	0.569855	2306.130487	
4	D	0.346285	1401.372535	
6	F	0.894402	3619.532275	
6	J	0.102697	415.602315	
6	H	0.213424	863.699838	
6	G	0.071668	290.032219	
6	I	0.371773	1504.519666	
6	D	0.078606	318.107738	
6	A	0.502943	2035.344250	
6	B	0.043329	175.348749	
7	A	1.496888	6057.713712	
8	A	0.636081	2574.140312	
8	F	1.230141	4978.222162	
8	B	0.179418	726.081863	
8	C	0.166708	674.644524	
8	D	0.082575	334.170335	
8	E	0.268425	1086.281477	
9	L	2.774890	11229.625681	

Site	Polygon	Acres	Square Meters	Notes
9	A	0.087154	352.701291	
9	B	0.110768	448.264184	
9	C	0.112314	454.519881	
9	D	0.274007	1108.870676	
9	K	0.252921	1023.540901	
9	E	0.091157	368.900062	
9	F	0.115738	468.375050	
9	J	0.139374	564.030150	
9	I	0.333216	1348.482646	
9	H	0.788504	3190.976943	
9	G	0.120713	488.510008	
9	A	1.175872	4758.604064	
10	A	0.549500	2223.756522	
10	C	0.063213	255.816089	
10	B	0.103326	418.145706	
10	D	0.199871	808.850847	
10	F	0.149504	605.023287	
10	E	0.033497	135.558701	
10	G	0.395223	1599.415947	
11	D	0.158471	641.312923	
11	B	0.079773	322.831329	
11	A	0.176178	712.969768	
12	B	0.111603	451.642930	
13	A	0.247212	1000.437211	
16	A	0.765449	3097.672645	
17	B	0.187731	759.722255	
17	F	0.030284	122.553988	
17	C	0.411344	1664.655628	
17	D	0.044863	181.553245	
17	B	0.030373	122.913757	
17	A	0.496396	2008.851658	
18	A	0.339316	1373.168305	
19	A	0.161047	651.735506	
20	D	0.754276	3052.460040	
20	B	0.239909	970.880694	
20	E	0.110779	448.307948	
20	F	1.020791	4131.010128	
20	D	0.720832	2917.116962	
20	A	0.684975	2772.005223	
20	C	4.344165	17580.284007	
24	A	2.959672	11977.417019	
23	A	1.555598	6295.306604	
25	G	0.655013	2650.752979	
26	D	0.835371	3380.641639	
23	B	0.185673	751.396297	
24	C	0.351410	1422.112218	
24	B	0.999897	4046.456260	
26	OW	0.083144	336.472760	open water?
26	A	0.151018	611.150260	
26	C	0.194287	786.255479	
26	B	0.805891	3261.340078	
25	A	0.071397	288.934659	
25	B	0.124572	504.127308	
25	C	0.107397	434.622161	
25	OW1	0.299449	1211.832358	open water?
25	D	0.691135	2796.936318	
25	E	0.170106	688.398764	

Site	Polygon	Acres	Square Meters	Notes
25	F	0.026995	109.244931	
25	H	0.074295	300.661981	
25	OW2	0.046800	189.394888	open water?
25	OW3	0.172495	698.063827	open water?
25	I	0.330362	1336.934580	
21	A	4.015244	16249.181491	not surveyed in 2011
22	A	7.866537	31834.871476	not surveyed in 2011
2012				
1	A-1	0.113203	458.118552	
1	A-2	0.038058	154.015449	
1	A-3	0.176669	714.957676	
2	A	0.501158	2028.122366	
3	A-1	1.227943	4969.329473	
3	A-2	0.301287	1219.269496	
4	A-1	2.402875	9724.128683	
4	A-2	1.200985	4860.233326	
5	A	0.170307	689.210648	
6	A-1	0.102683	415.546063	
6	A-2	0.200997	813.408284	
6	A-3	0.023804	96.332062	
6	A-4	0.219735	889.240559	
6	A-5	0.959759	3884.023773	
6	A-6	0.067546	273.351244	
6	A-7	0.670783	2714.574032	
6	A-8	0.077201	312.421630	
6	A-9	0.500944	2027.255424	
6	A-OP	0.039036	157.975080	
7	A-1	1.496888	6057.713712	
8	A-1	0.240569	973.552938	
8	A-2	1.542323	6241.586271	
8	A-3	0.188828	764.160845	
8	A-4	0.266534	1078.629155	
8	A-5	0.974025	3941.754984	
8	A-OP	0.121806	492.932075	
9	A-1	0.139566	564.806334	
9	A-2	0.355444	1438.434660	
9	A-3	2.406370	9738.274526	
9	A-4	0.337067	1364.066270	
9	A-5	1.662854	6729.356877	
9	A-6	0.162507	657.643471	
9	A-OP	0.107316	434.292516	
10	A-1	1.575181	6374.556848	
10	A-2	0.323684	1309.906282	
10	A-3	0.339543	1374.086127	
10	A-4	0.366798	1484.382924	
11	A-1	0.176178	712.969768	
11	A-2	0.229451	928.560068	
11	A-3	0.158471	641.312923	
12	A-1	0.064176	259.710827	
12	A-2	0.122029	493.837766	
12	A-3	0.437353	1769.910559	
13	A	0.879966	3561.110710	
14	A-1	0.248402	1005.251287	
14	A-2	0.584572	2365.687023	
15	A	39.170539	158518.180577	
16	A-A	0.765449	3097.672645	
16	A-B	0.832909	3370.675110	

Site	Polygon	Acres	Square Meters	Notes
17	A-A	0.696363	2818.090335	
17	A-B	0.906887	3670.055383	
17	A-C	0.173771	703.230077	
18	A-A	0.423748	1714.854930	
18	A-B	0.523586	2118.885482	
18	A-C	0.409041	1655.338120	
19	A-A	1.207303	4885.803284	
19	A-B	0.414275	1676.518024	
20	A	12.432027	50310.831412	
21	A	4.015244	16249.181491	
22	A	7.866537	31834.871476	
23	A	1.741271	7046.702901	
24	A	4.310980	17445.985497	
25	A-1	0.368618	1491.750217	
25	A-2	0.026365	106.696255	
25	A-3	0.178508	722.401129	
25	A-4	0.166134	672.323803	
25	A-5	1.720357	6962.065382	
25	A-River	0.310034	1254.667968	
26	A-1	0.139217	563.394376	
26	A-2	1.930495	7812.465839	

APPENDIX 4
SITE MAPS WITH VEGETATION POLYGONS DIGITIZED FROM FIELD MAPS FOR EACH OF THE 3 YEARS

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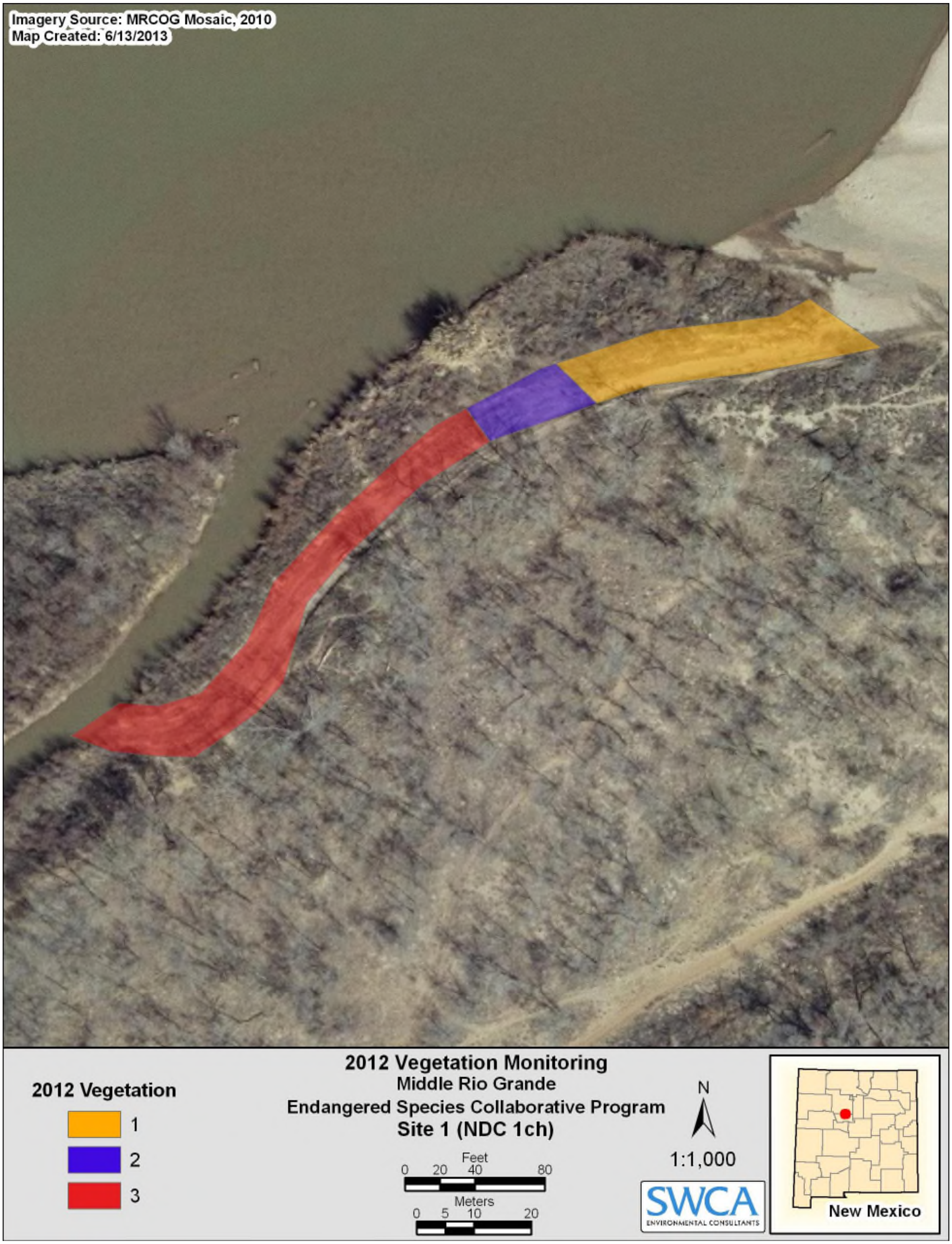
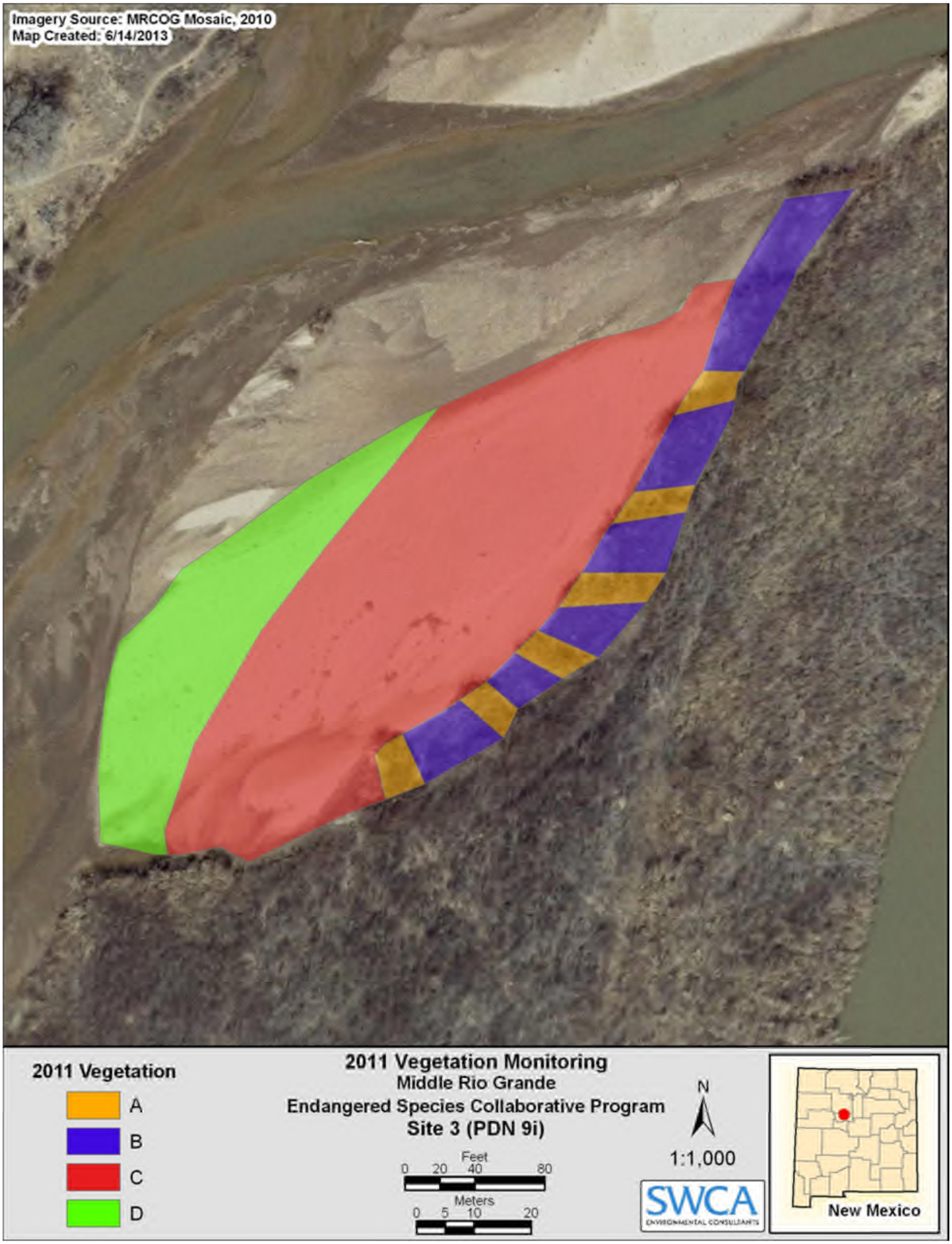
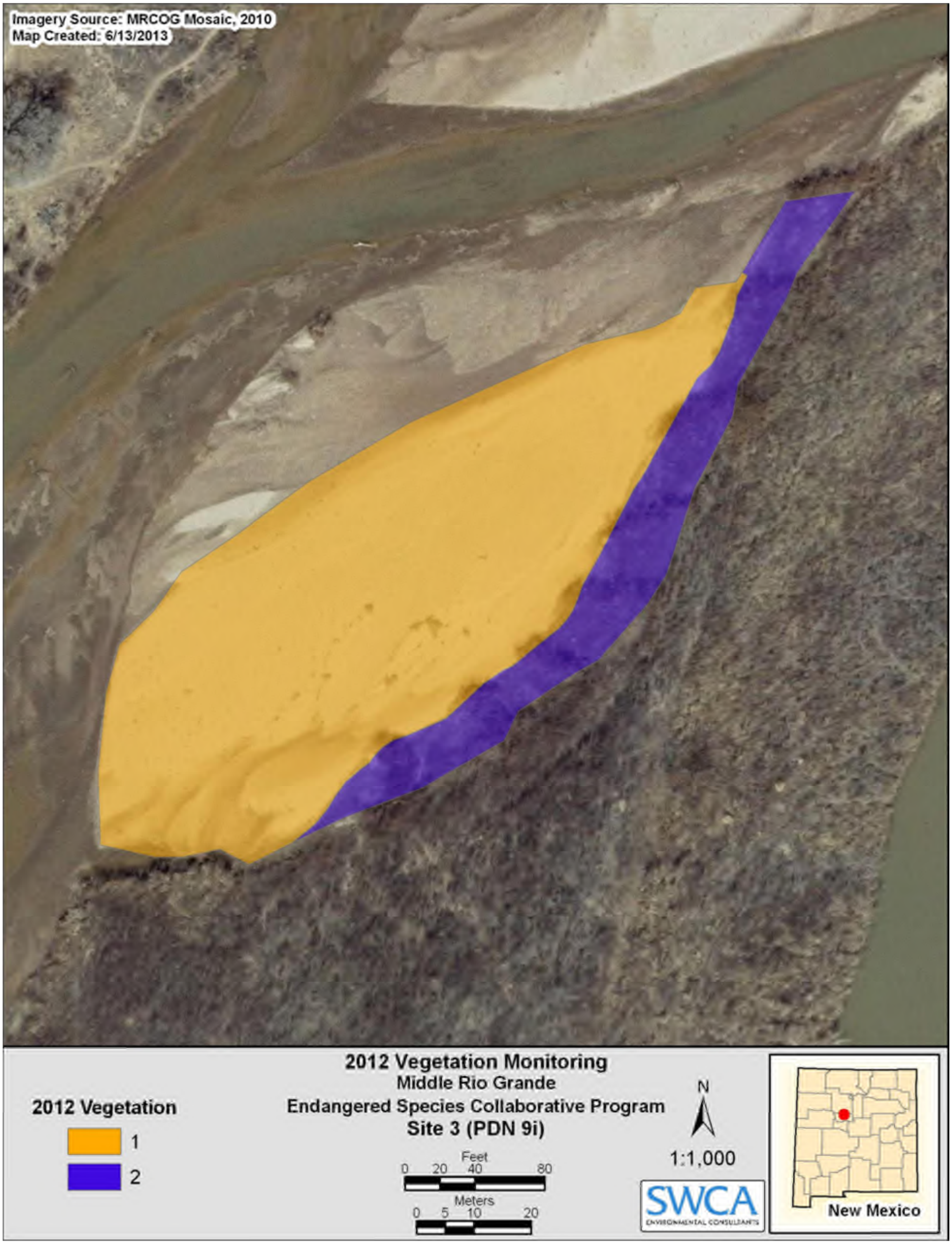
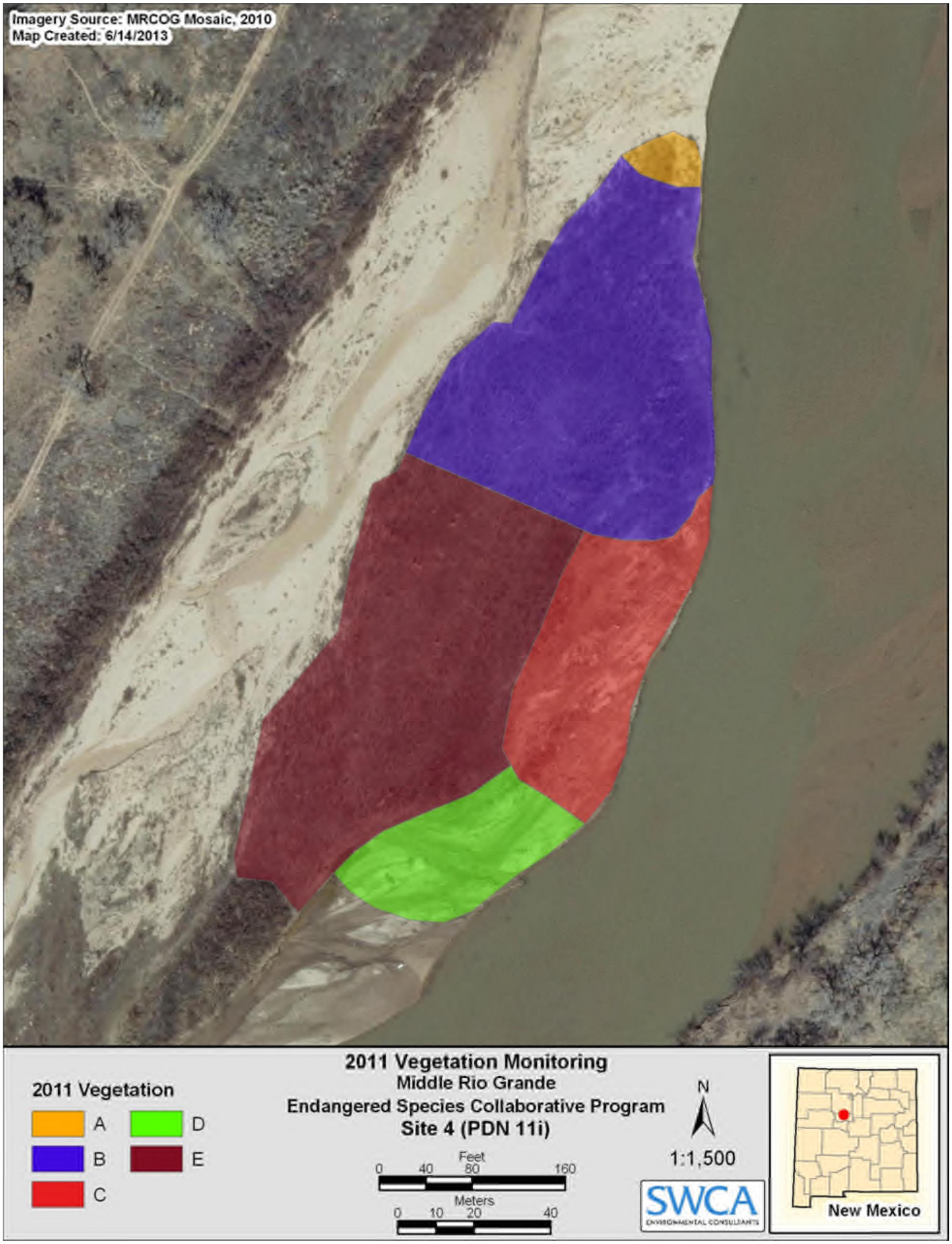
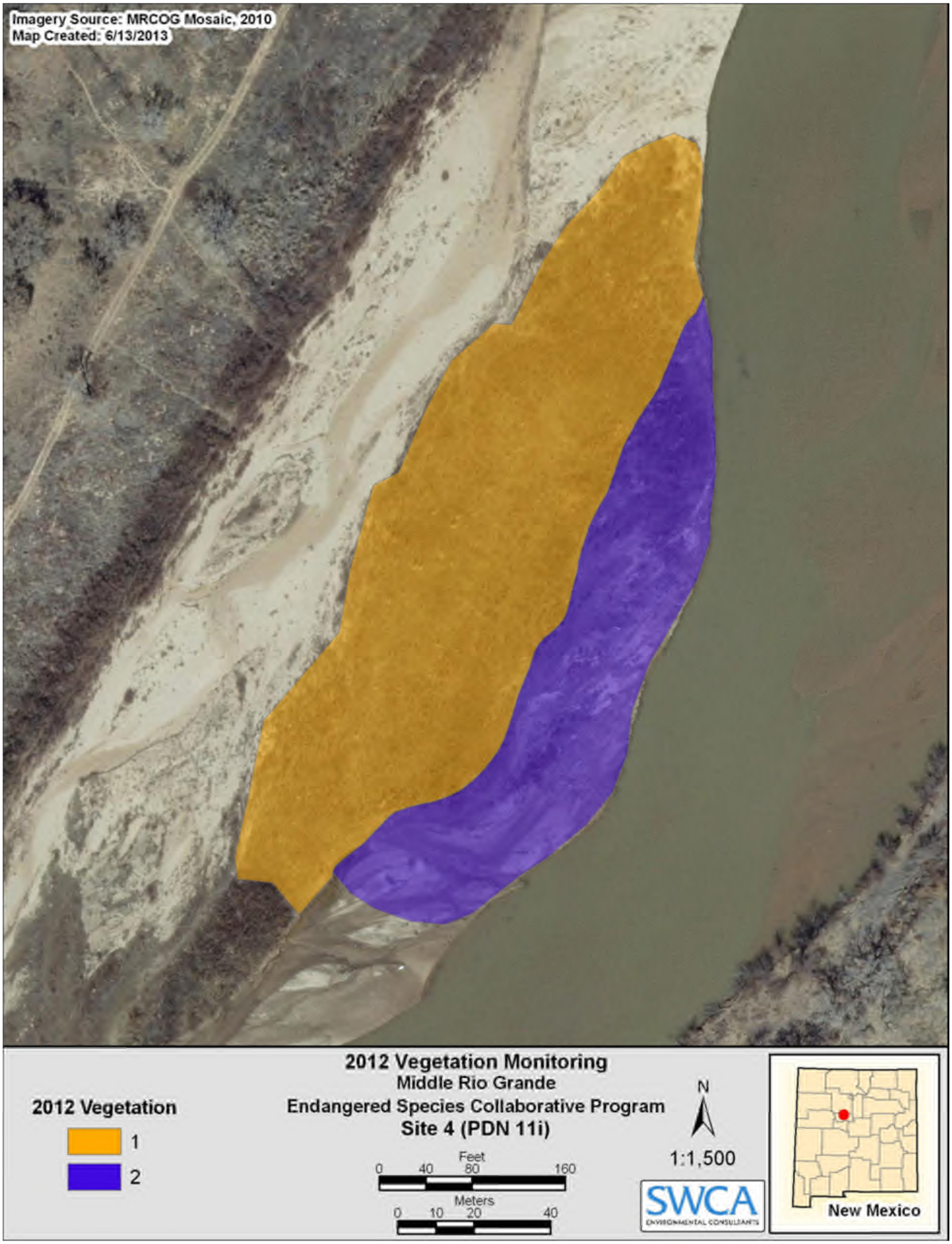
Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation
A
B
C
D
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 1 (NDC 1ch)
Feet
0 20 40 80
Meters
0 5 10 20
N
1:1,000
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

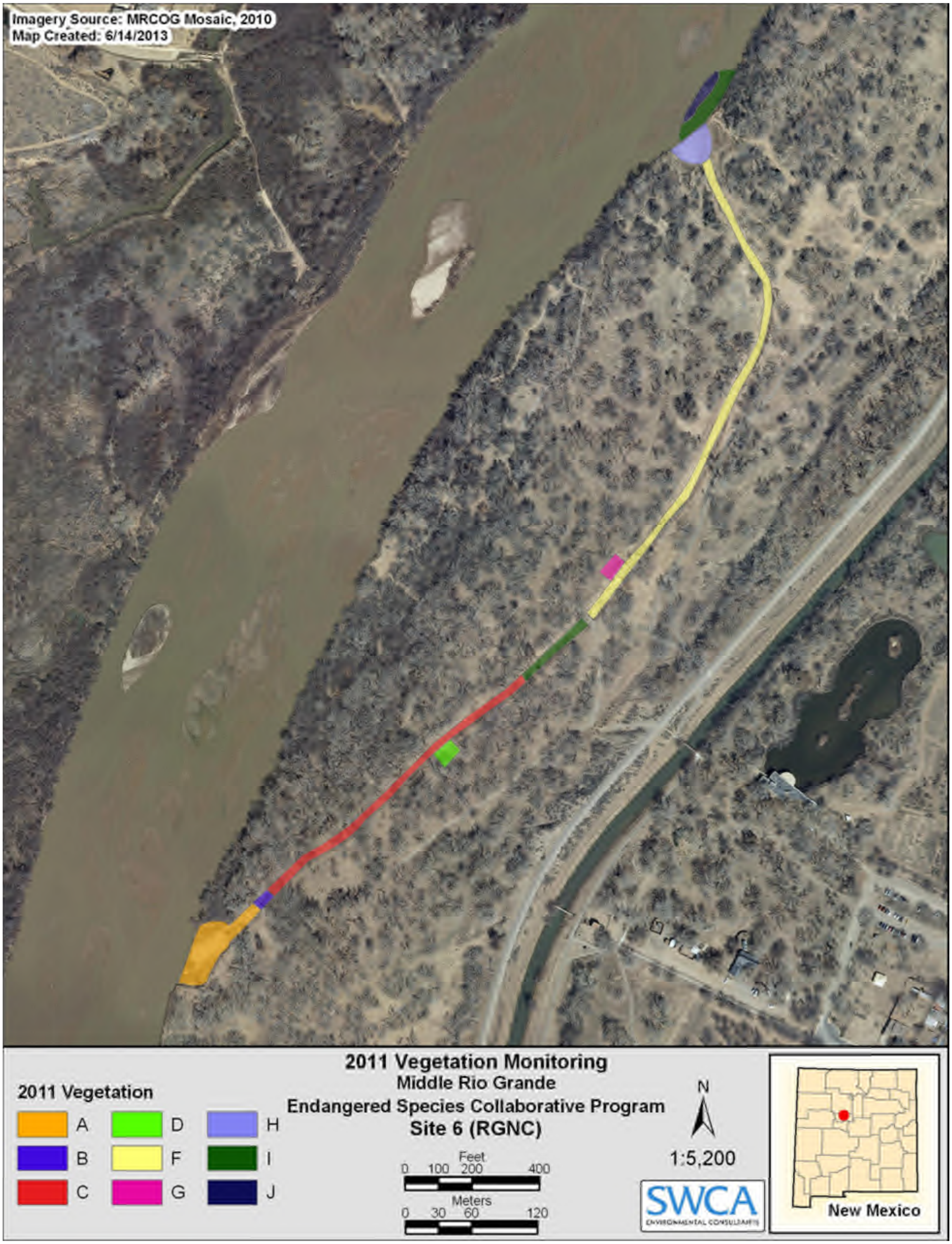

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation
1
2
3
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 1 (NDC 1ch)
Feet
0 20 40 80
Meters
0 5 10 20
N
1:1,000
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

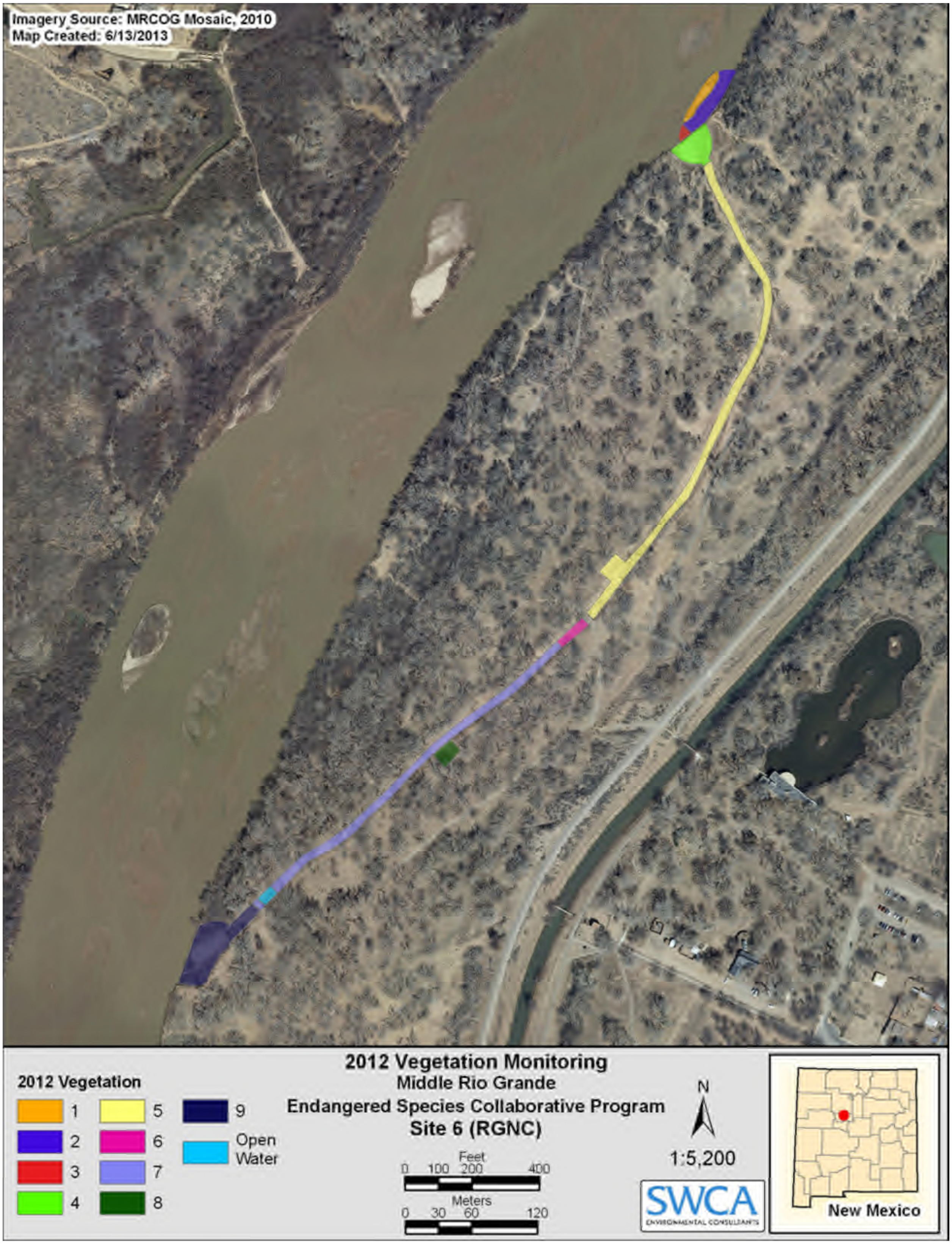

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation
A
B
C
D
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 3 (PDN 9i)
N
1:1,000
Feet
0 20 40 80
Meters
0 5 10 20
SWCA
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 3 (PDN 9i)
2012 Vegetation
1
2
Feet
0 20 40 80
Meters
0 5 10 20
N
1:1,000
SWCA
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 4 (PDN 11i)
2011 Vegetation
A
B
C
D
E
N
1:1,500
Feet
0 40 80 160
Meters
0 10 20 40
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

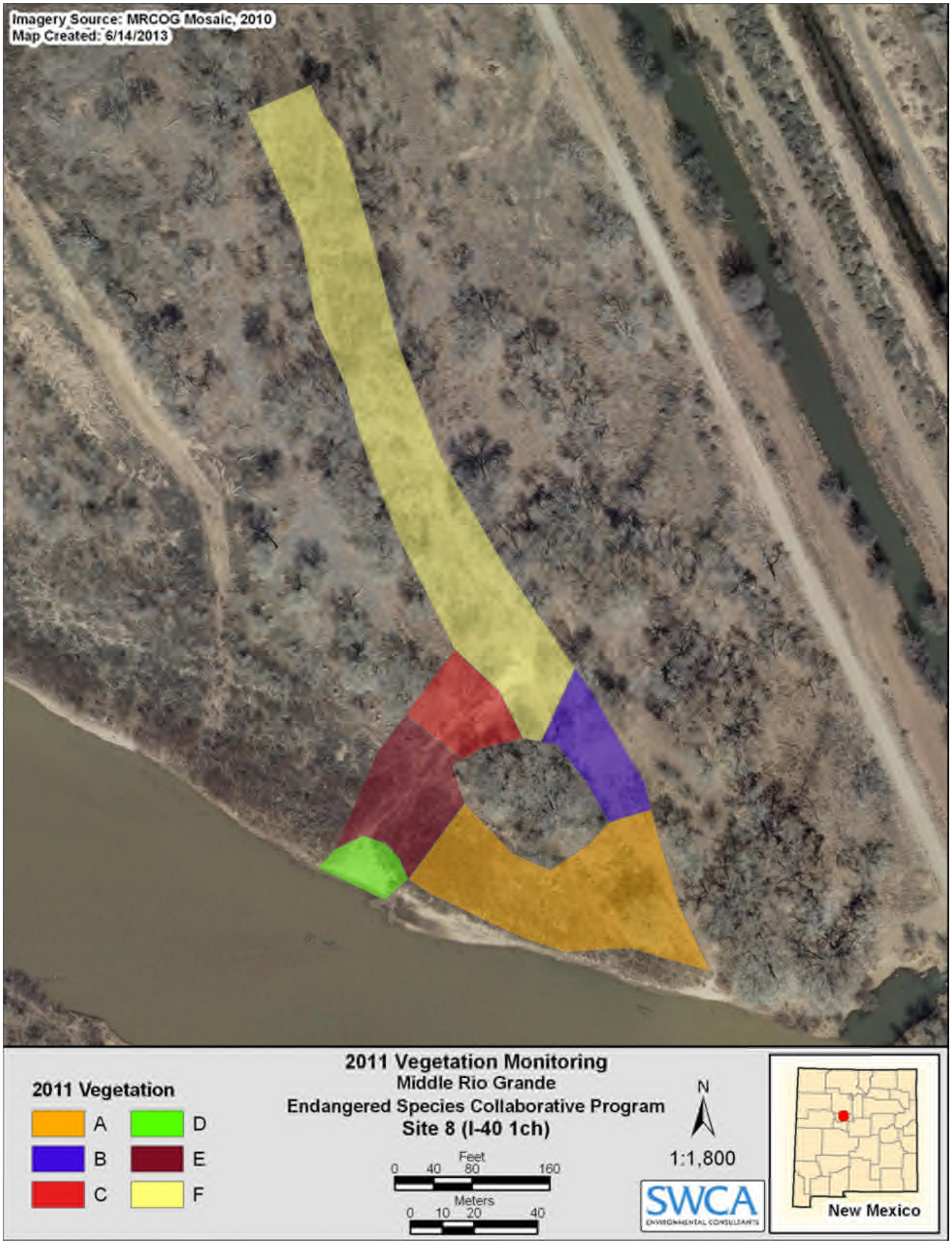

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 4 (PDN 11i)
2012 Vegetation
1
2
N
1:1,500
Feet
0 40 80 160
Meters
0 10 20 40
SWCA
New Mexico

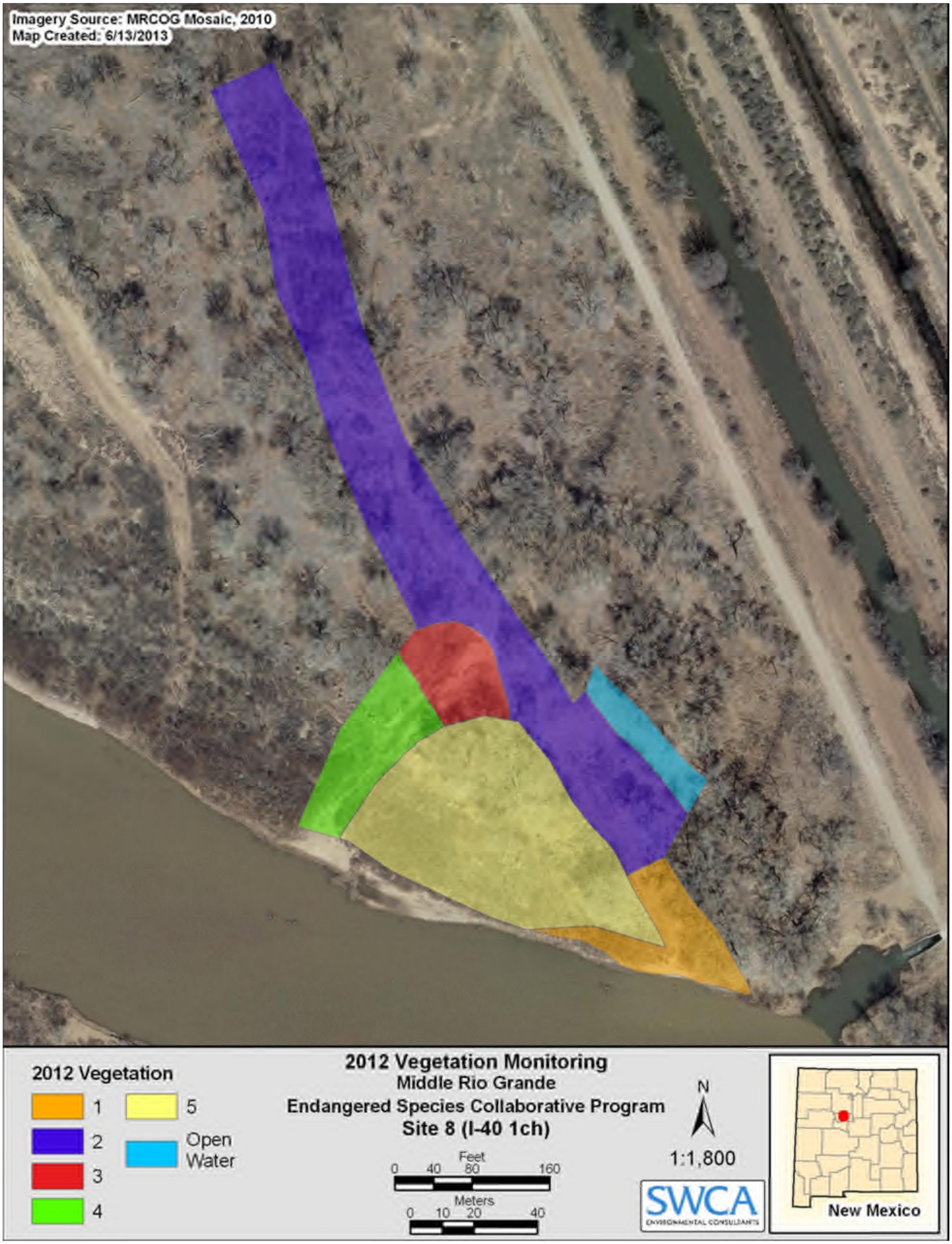

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 6 (RGNC)
2011 Vegetation
A
B
C
D
F
G
H
I
J
N
1:5,200
Feet
0 100 200 400
Meters
0 30 60 120
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

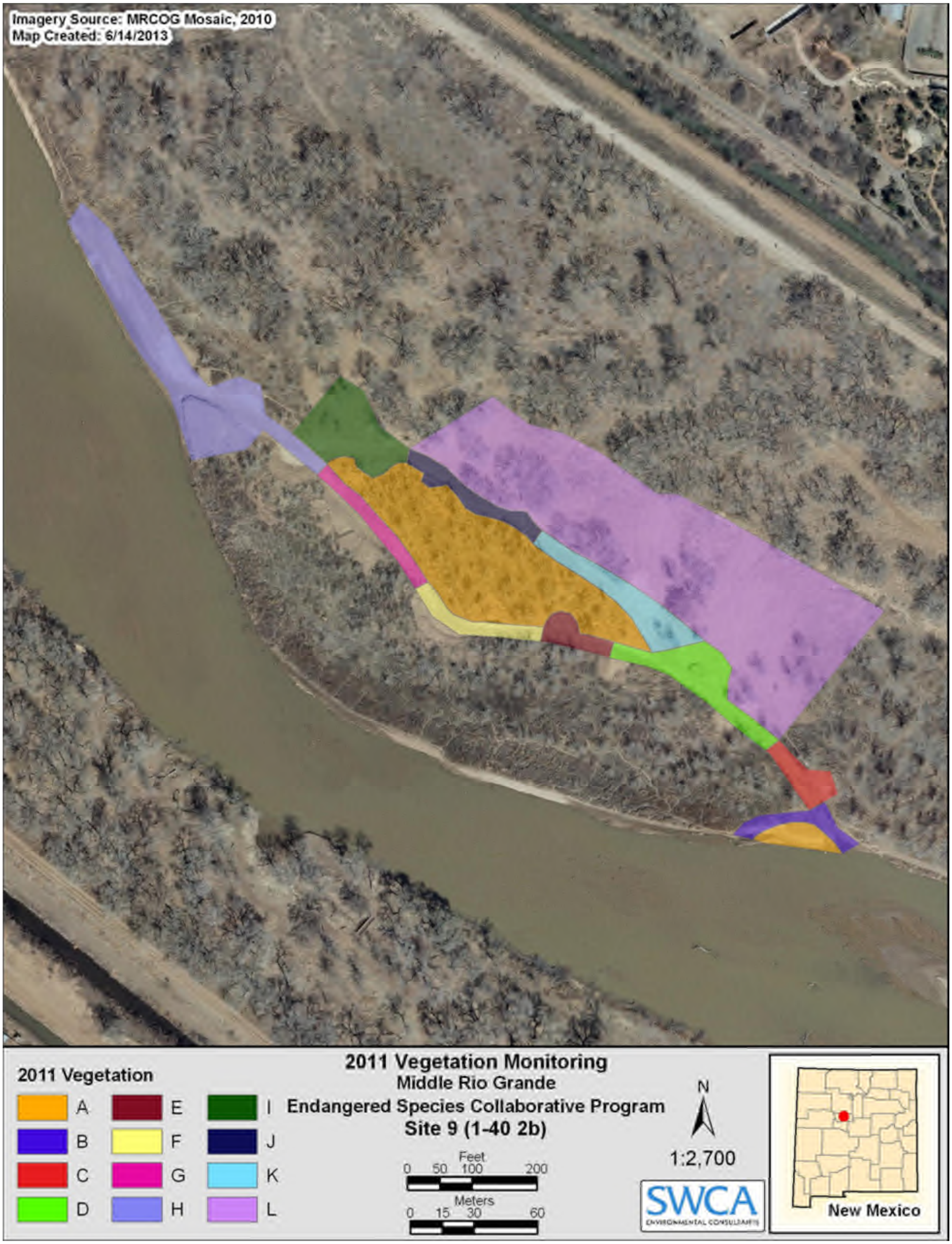

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 6 (RGNC)
2012 Vegetation
1
2
3
4
5
6
7
8
9
Open Water
Feet
0 100 200 400
Meters
0 30 60 120
N
1:5,200
SWCA
New Mexico

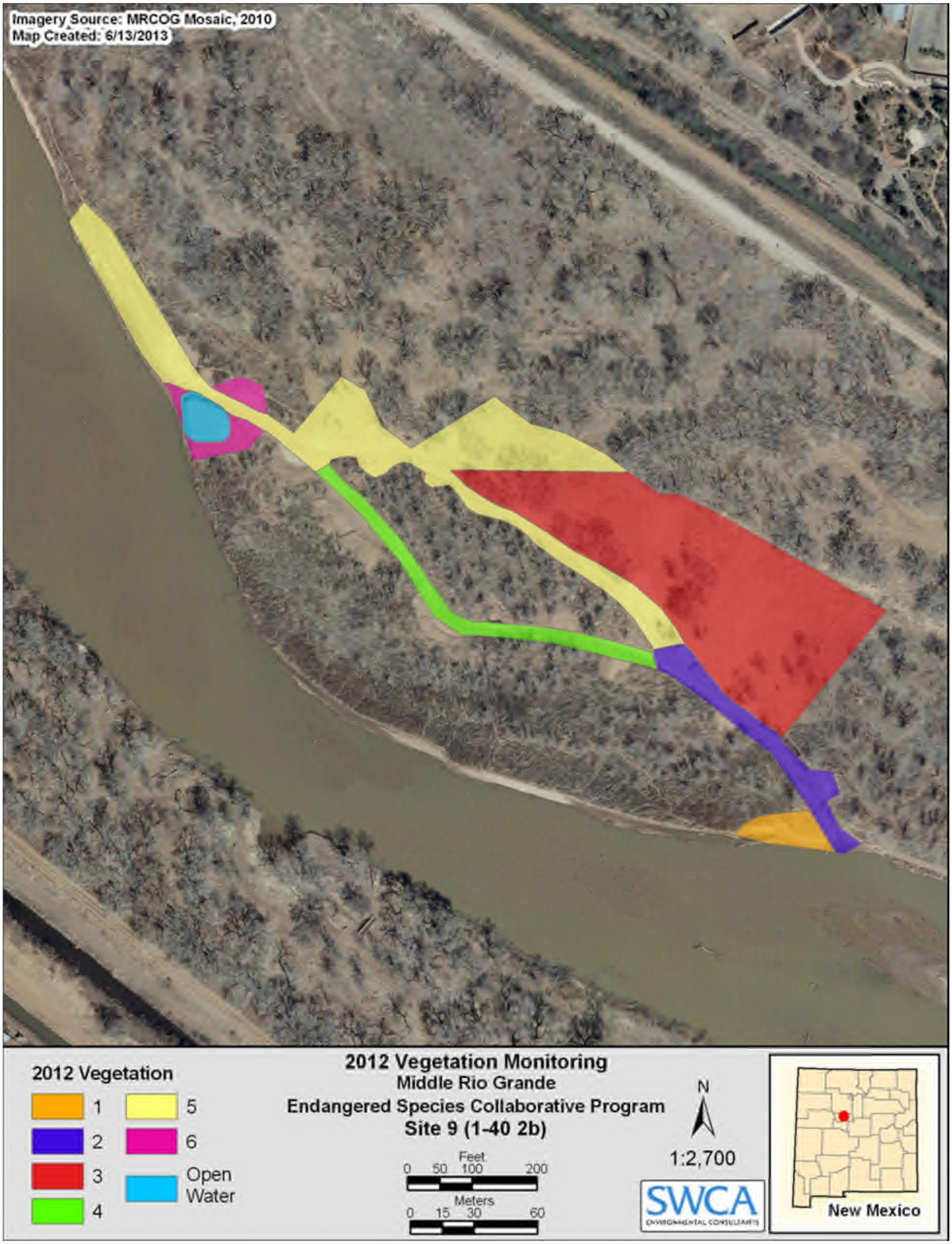

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 7 (I-40 2i)
2011 Vegetation
A
Feet
0 20 40 80
Meters
0 5 10 20
N
1:1,000
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

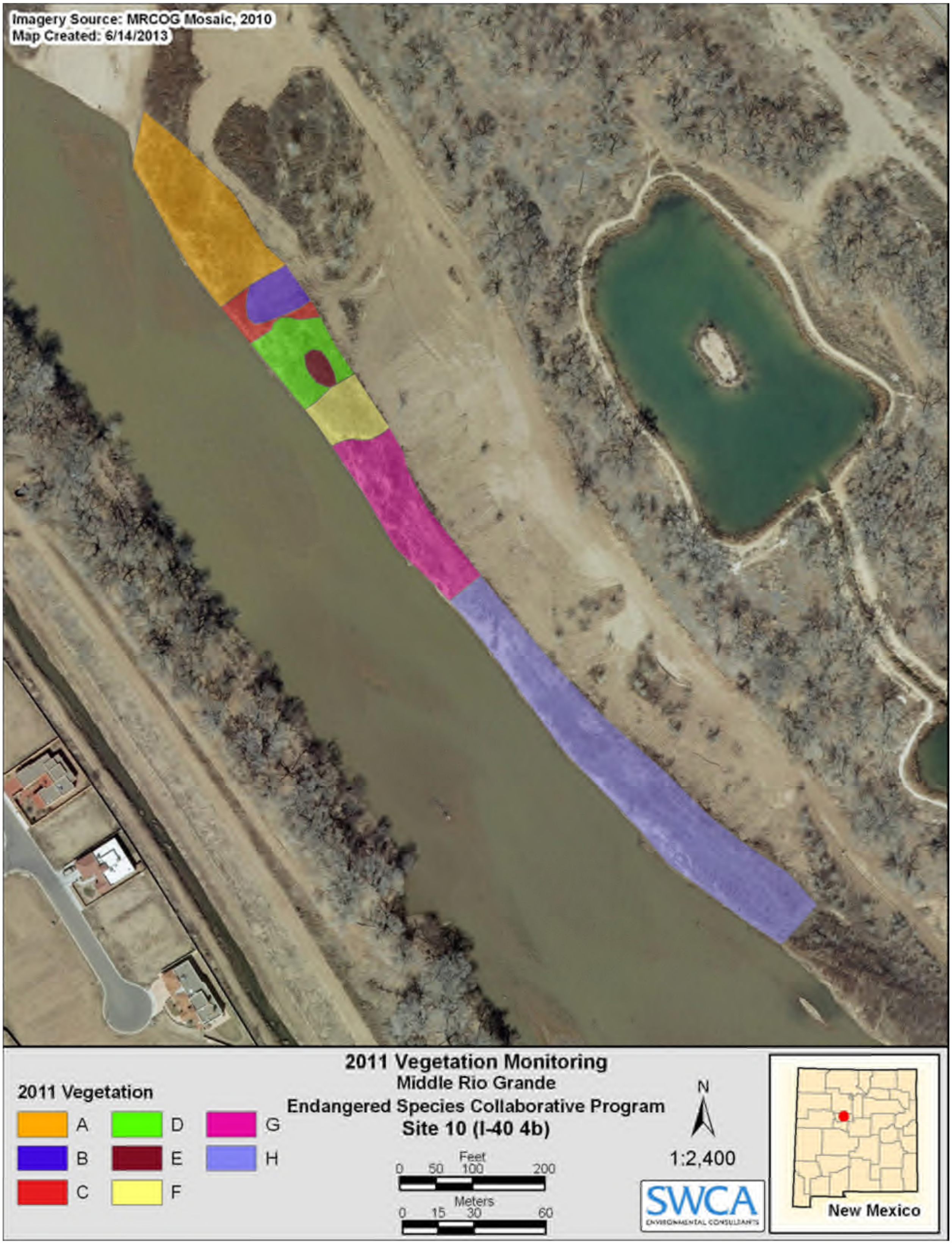

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 7 (I-40 2i)
2012 Vegetation
1
N
1:1,000
Feet
0 20 40 80
Meters
0 5 10 20
SWCA
New Mexico

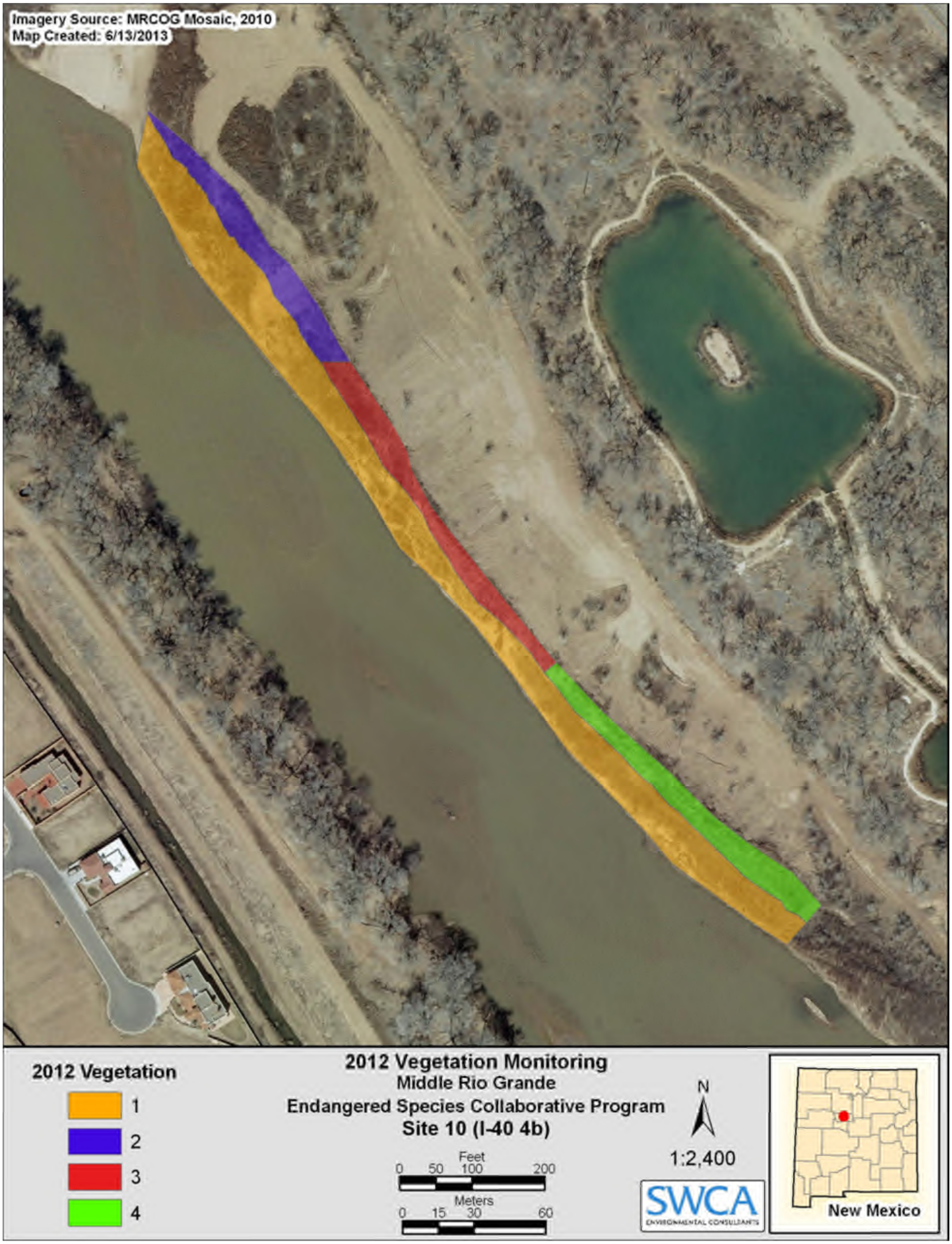

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 8 (I-40 1ch)
2011 Vegetation
A
B
C
D
E
F
N
1:1,800
Feet
0 40 80 160
Meters
0 10 20 40
SWCA
New Mexico

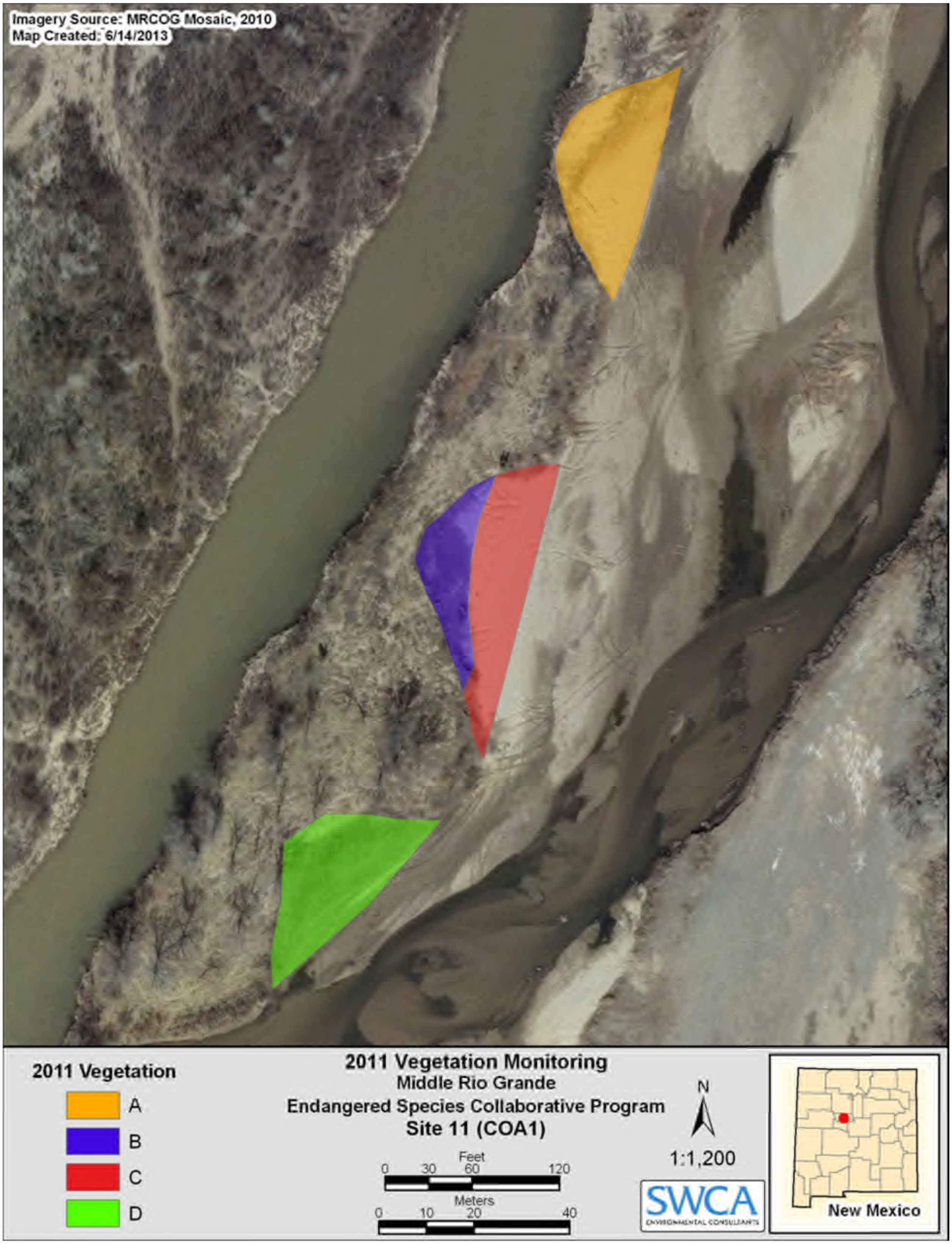

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation
1
2
3
4
5
Open Water
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 8 (I-40 1ch)
N
1:1,800
Feet
0 40 80 160
Meters
0 10 20 40
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

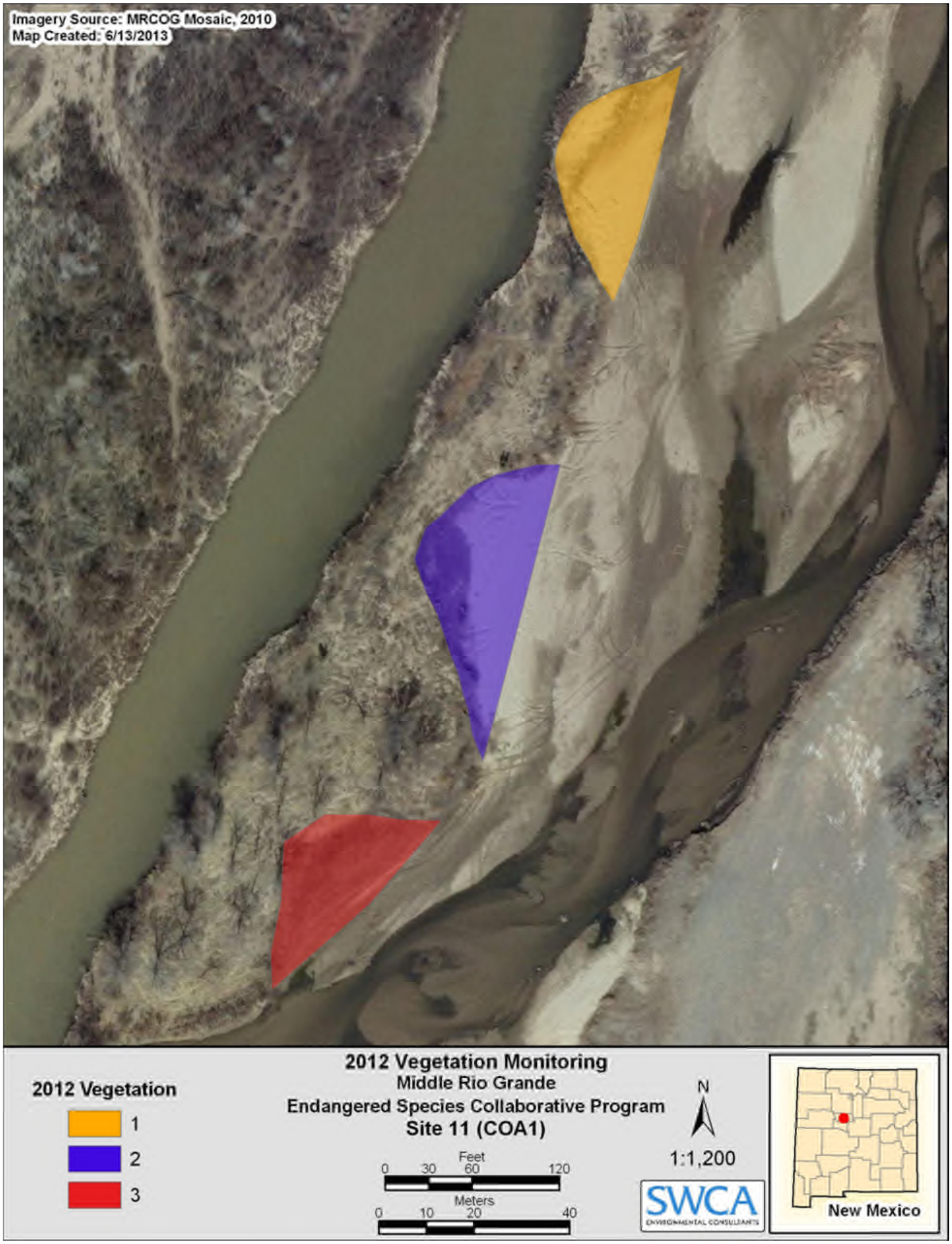

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation
A
B
C
D
E
F
G
H
I
J
K
L
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 9 (1-40 2b)
Feet
0 50 100 200
Meters
0 15 30 60
N
1:2,700
SWCA
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation
1
2
3
4
5
6
Open Water
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 9 (1-40 2b)
Feet
0 50 100 200
Meters
0 15 30 60
N
1:2,700
SWCA
New Mexico

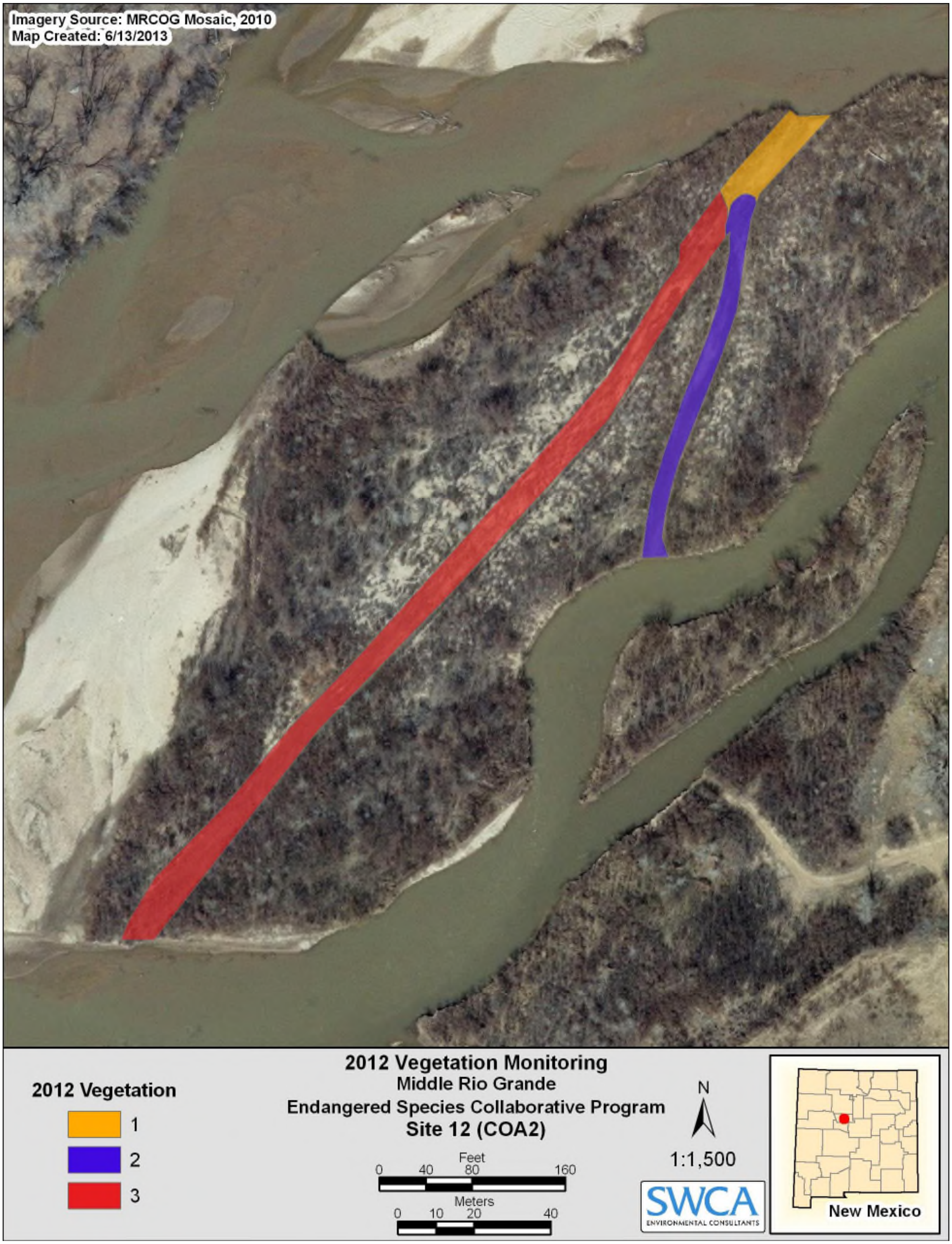

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 10 (I-40 4b)
2011 Vegetation
A
B
C
D
E
F
G
H
Feet
0 50 100 200
Meters
0 15 30 60
N
1:2,400
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

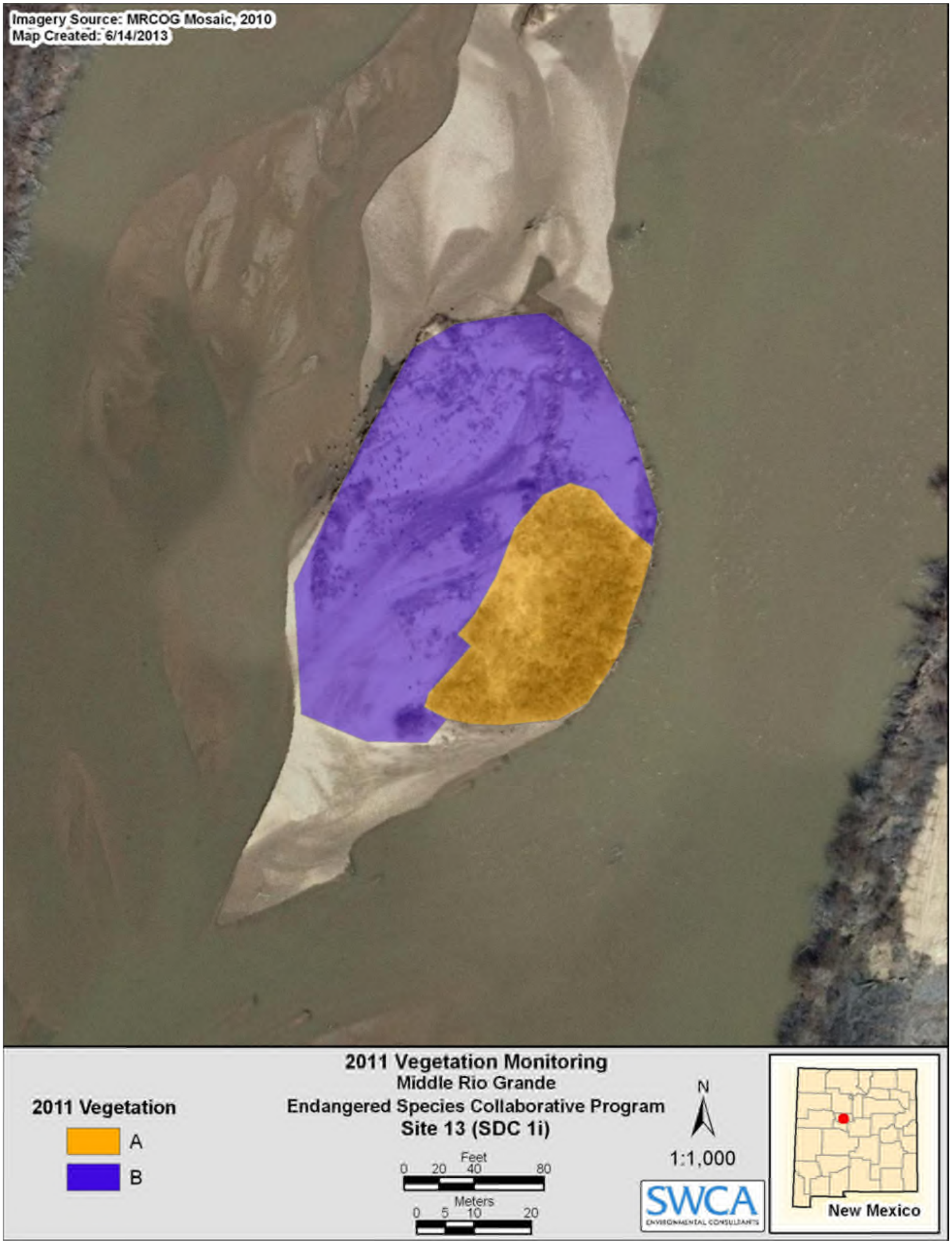

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation
1
2
3
4
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 10 (I-40 4b)
Feet
0 50 100 200
Meters
0 15 30 60
N
1:2,400
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation
A
B
C
D
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 11 (COA1)
Feet
0 30 60 120
Meters
0 10 20 40
N
1:1,200
SWCA
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 11 (COA1)
2012 Vegetation
1
2
3
Feet
0 30 60 120
Meters
0 10 20 40
N
1:1,200
SWCA
New Mexico

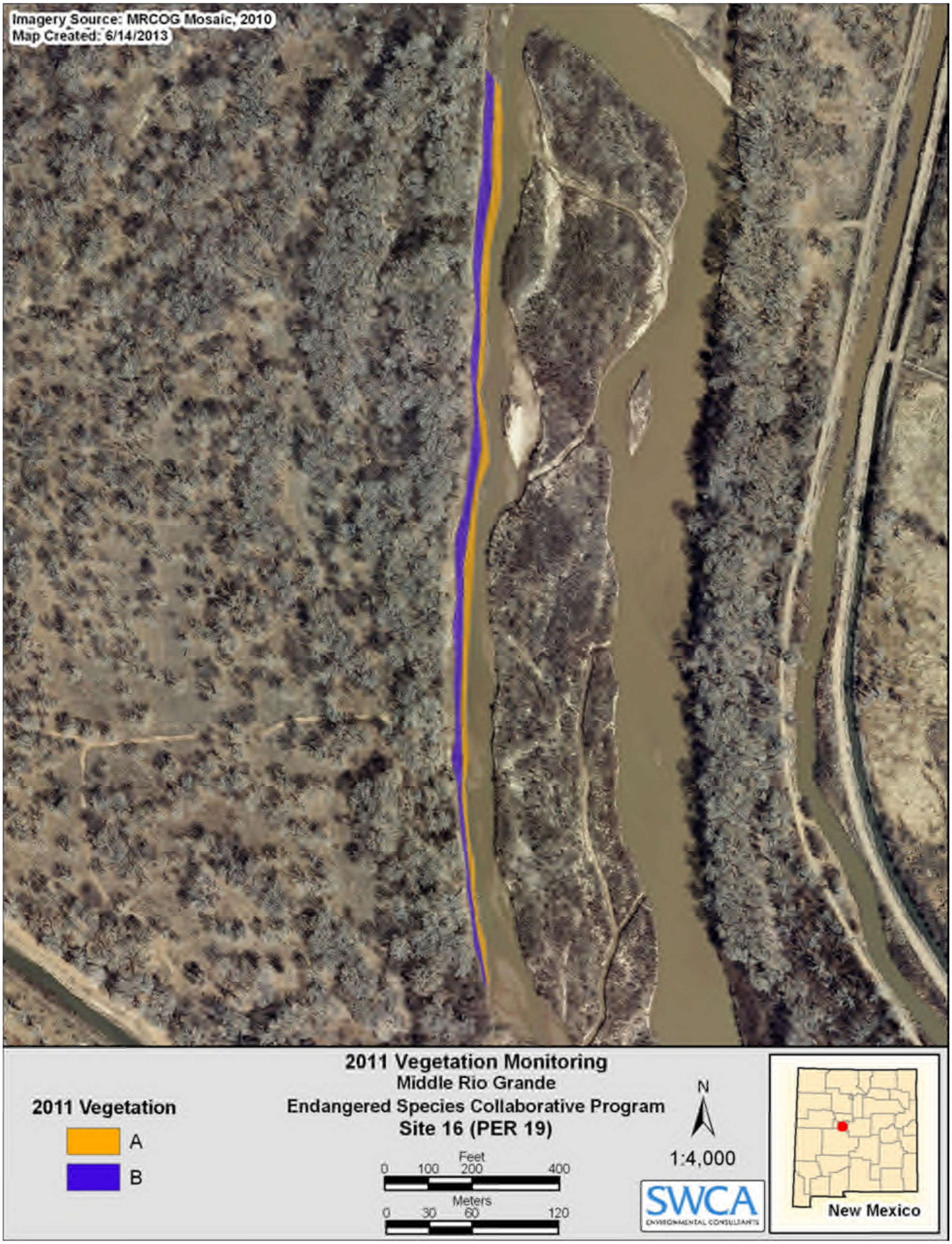

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 12 (COA2)
2011 Vegetation
A
B
N
1:1,500
Feet
0 40 80 160
Meters
0 10 20 40
SWCA
New Mexico

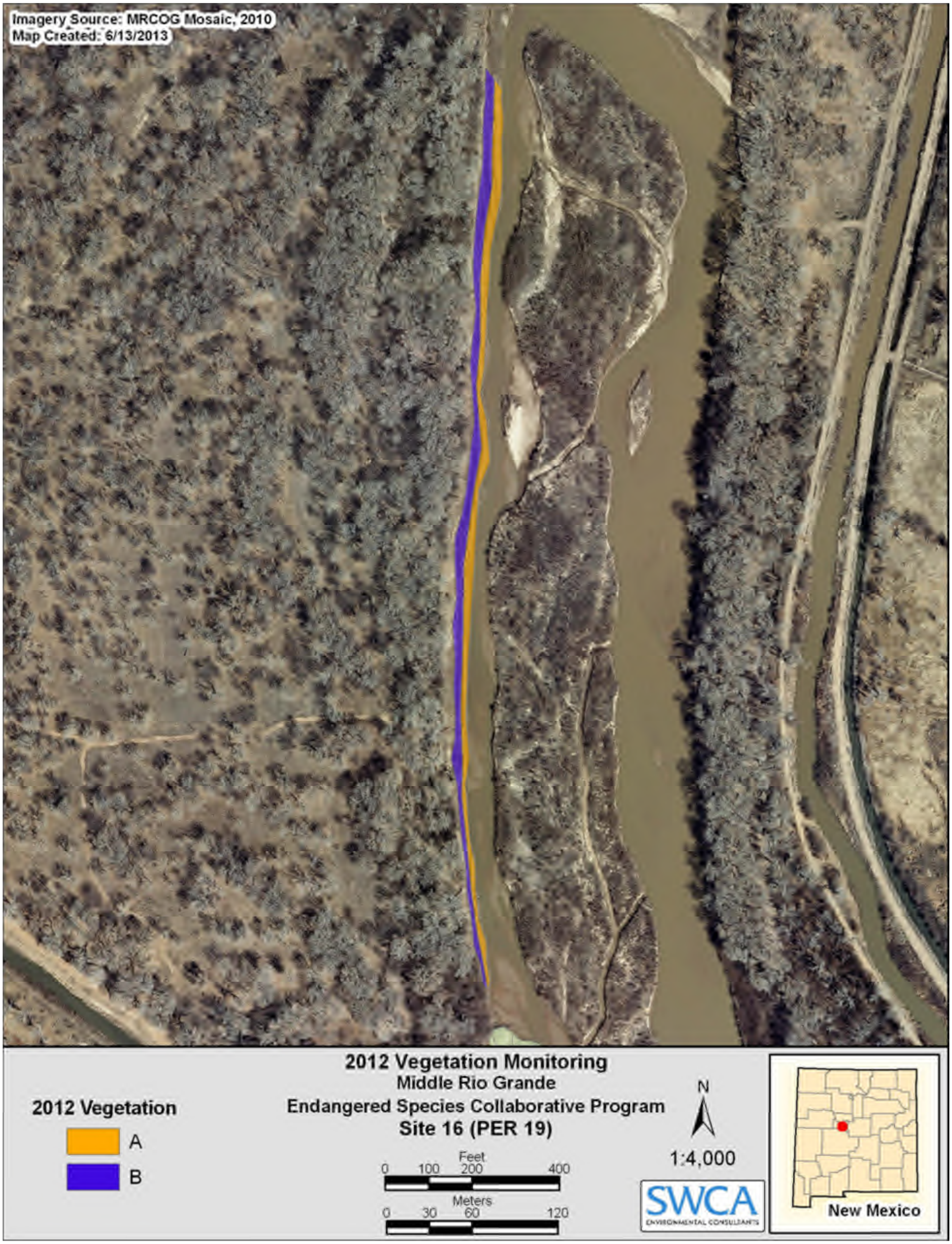

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation
1
2
3
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 12 (COA2)
Feet
0 40 80 160
Meters
0 10 20 40
N
1:1,500
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

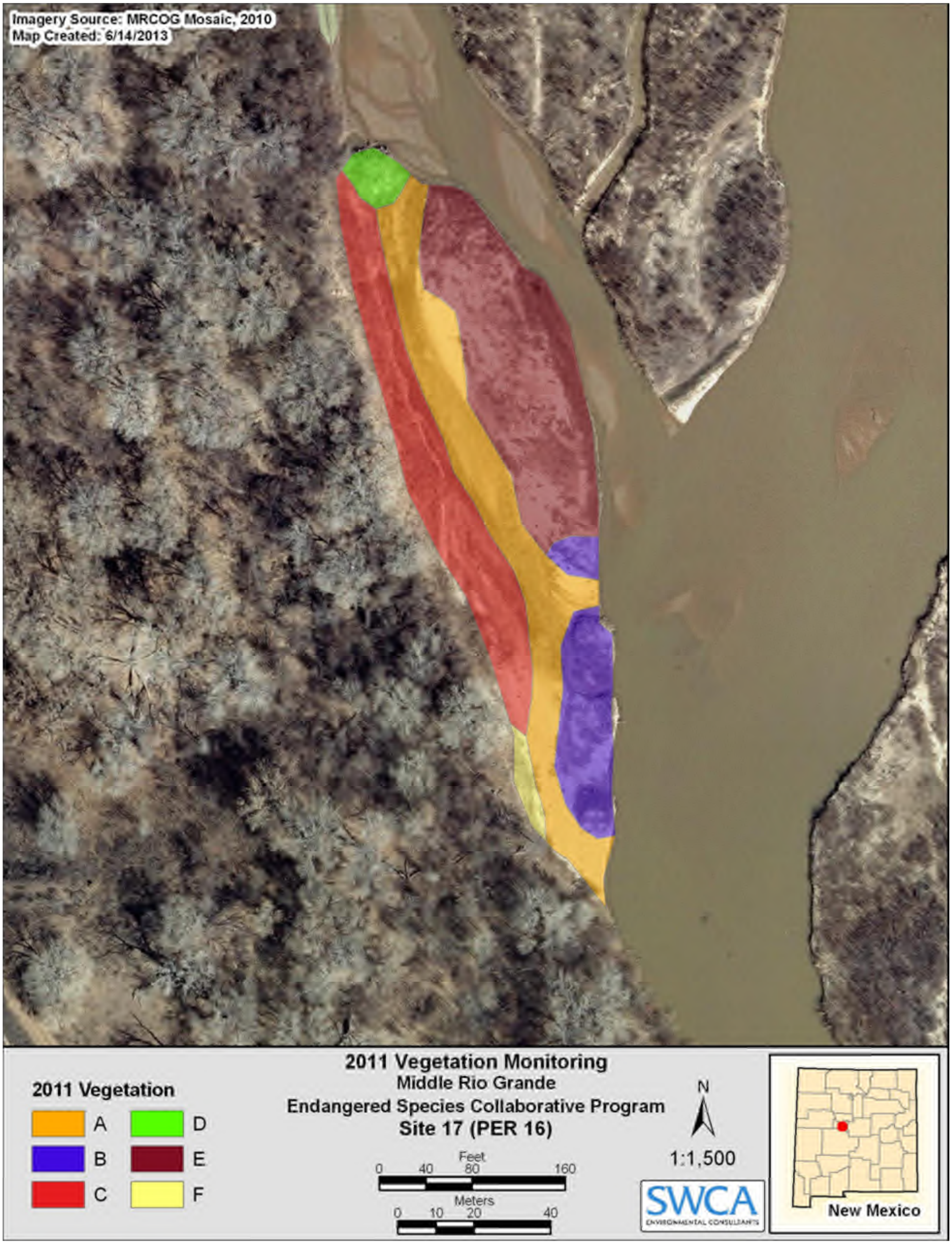

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation
A
B
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 13 (SDC 1i)
Feet
0 20 40 80
Meters
0 5 10 20
N
1:1,000
SWCA
New Mexico

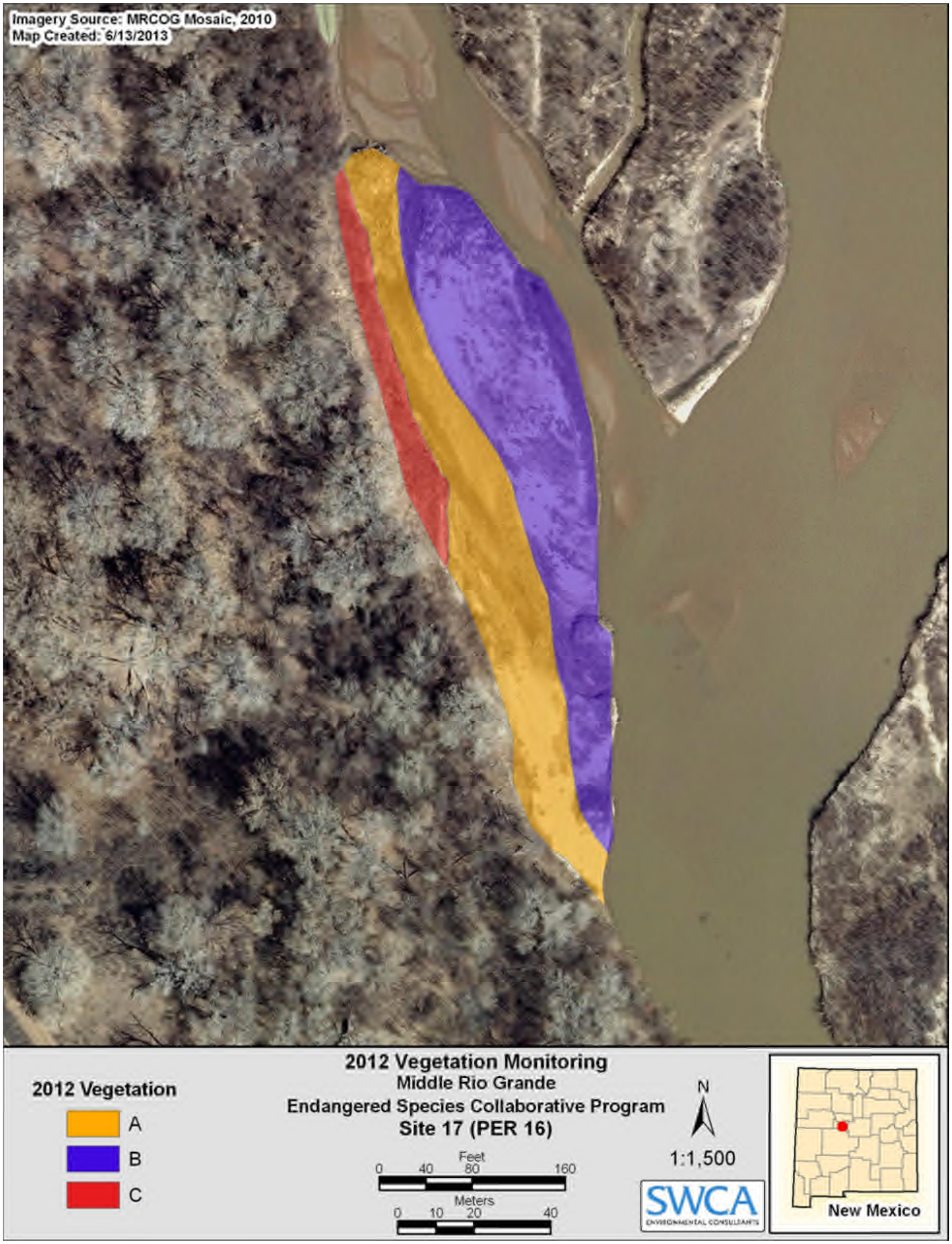

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 13 (SDC 1i)
2012 Vegetation
A
Feet
0 20 40 80
Meters
0 5 10 20
N
1:1,000
SWCA
New Mexico

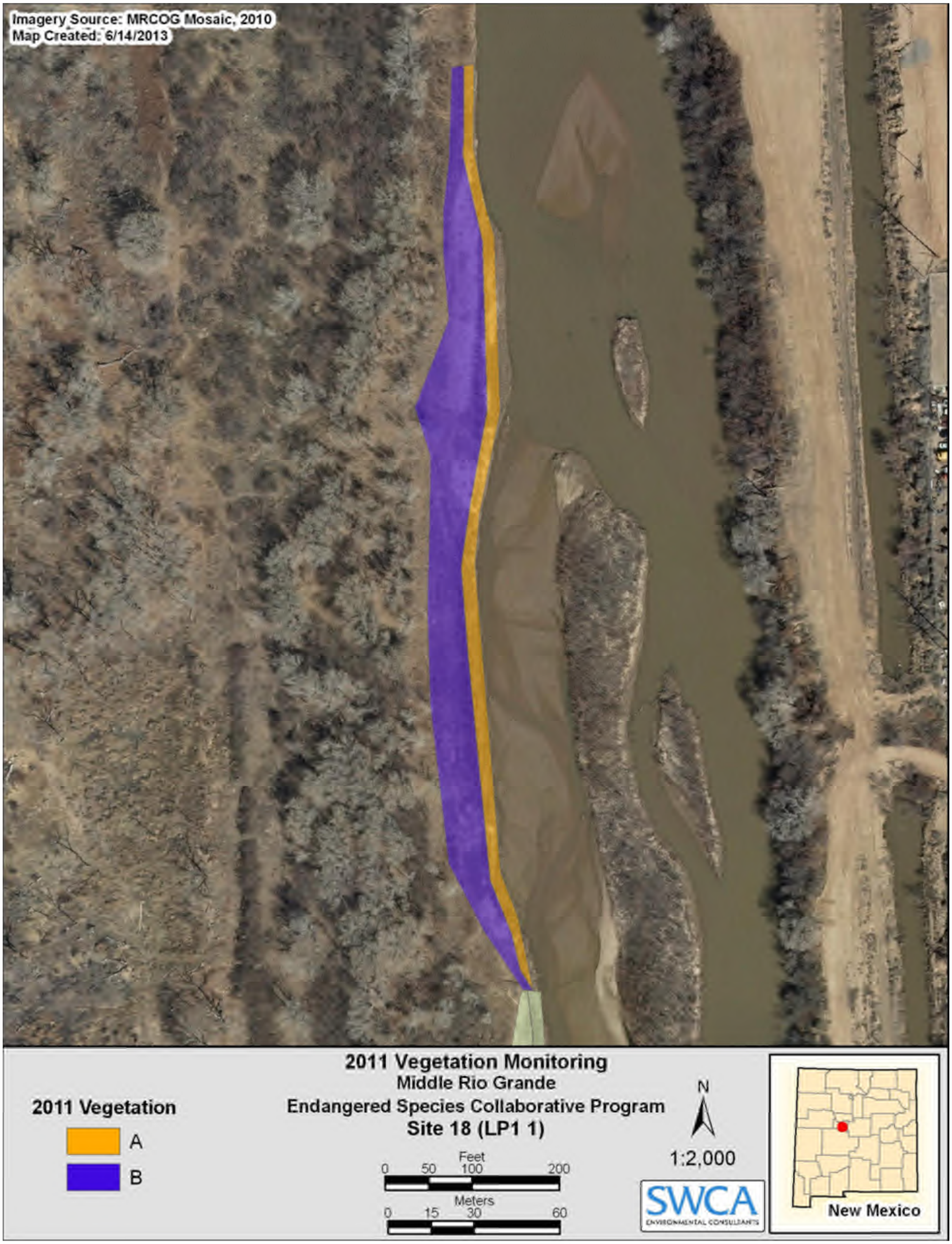

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 14 (SDC 5b)
2012 Vegetation
1
2
N
1:1,500
Feet
0 40 80 160
Meters
0 10 20 40
SWCA
New Mexico

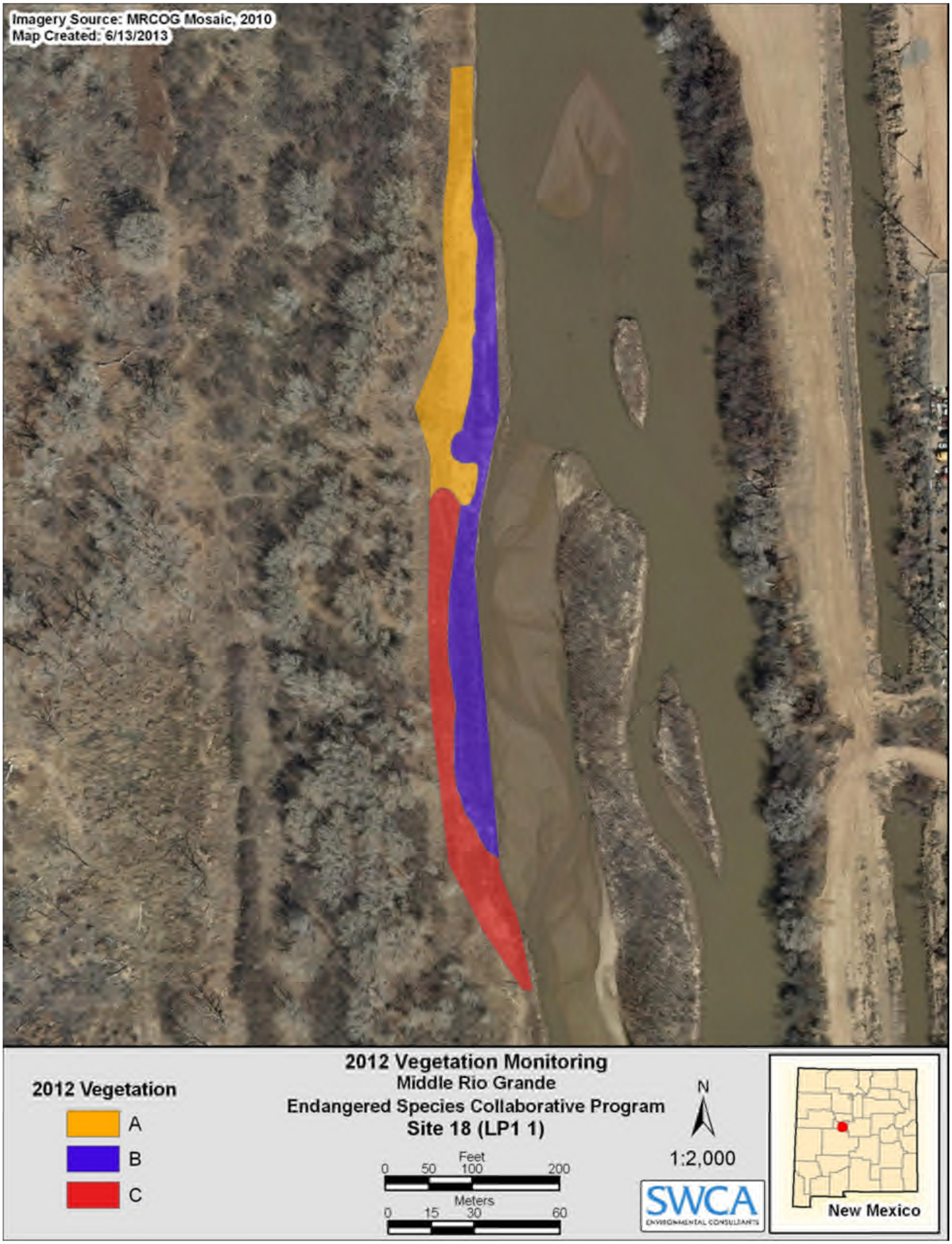

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 16 (PER 19)
2011 Vegetation
A
B
Feet
0 100 200 400
Meters
0 30 60 120
N
1:4,000
SWCA
New Mexico

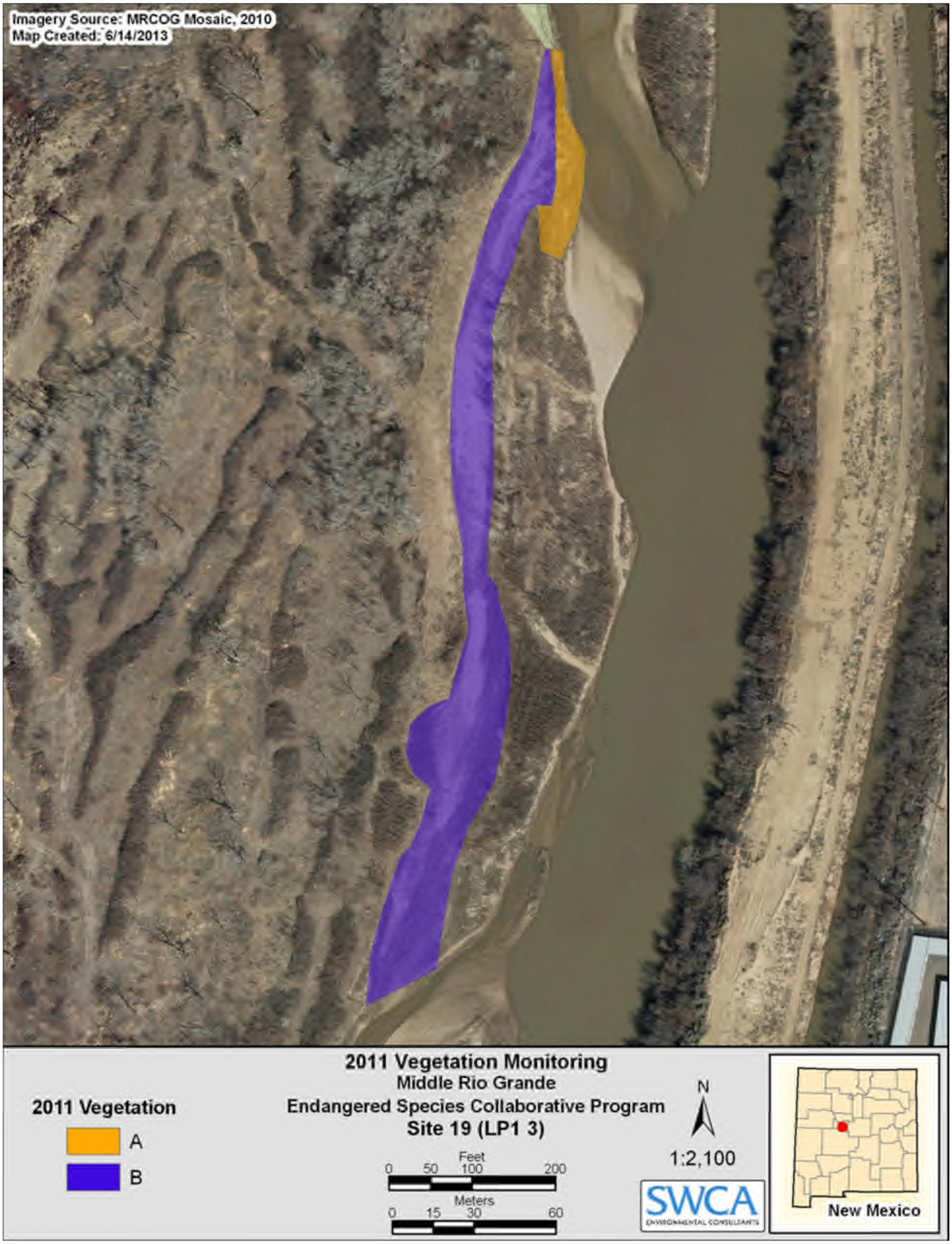

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 16 (PER 19)
2012 Vegetation
A
B
N
1:4,000
Feet
0 100 200 400
Meters
0 30 60 120
SWCA
New Mexico

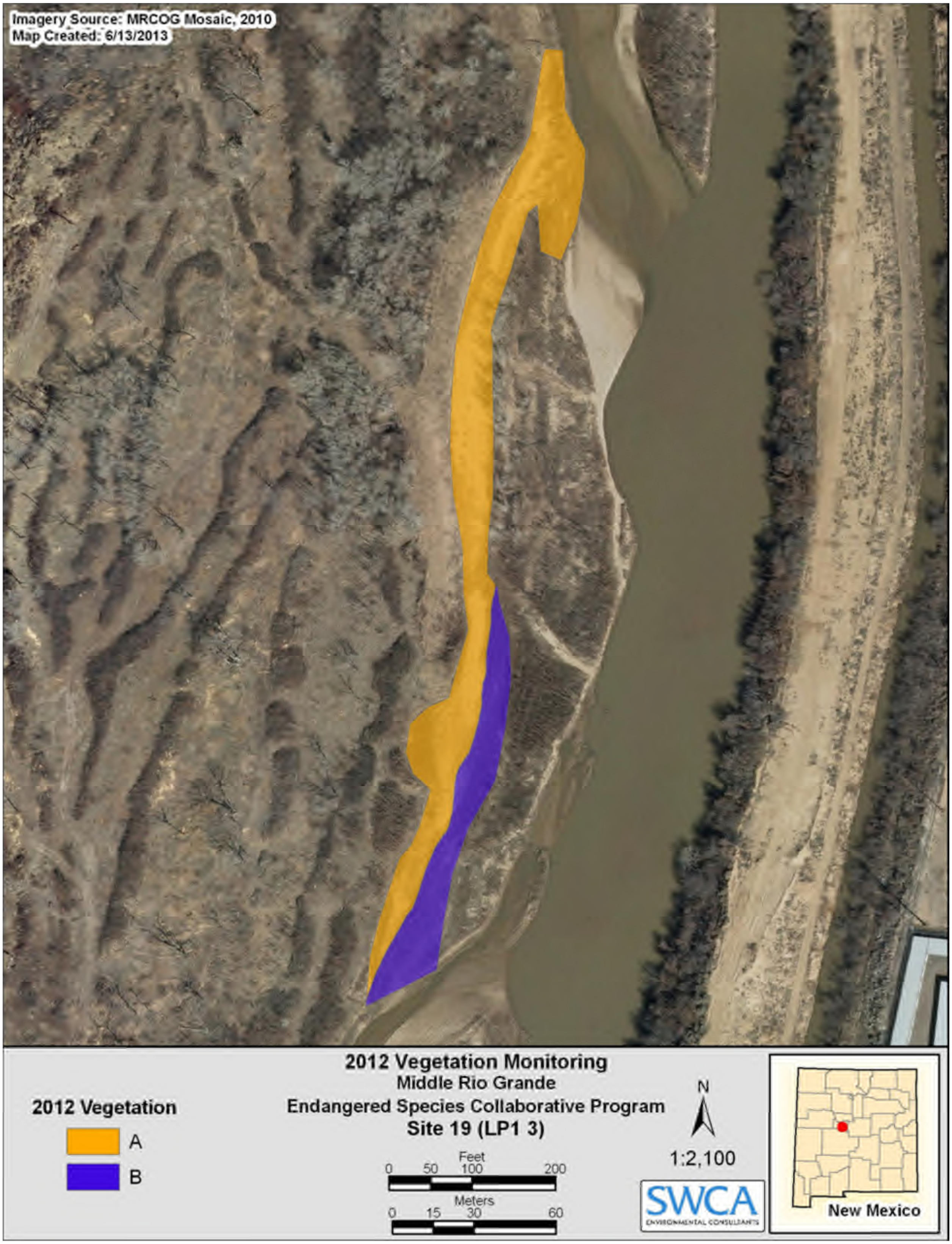

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation
A
B
C
D
E
F
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 17 (PER 16)
Feet
0 40 80 160
Meters
0 10 20 40
N
1:1,500
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

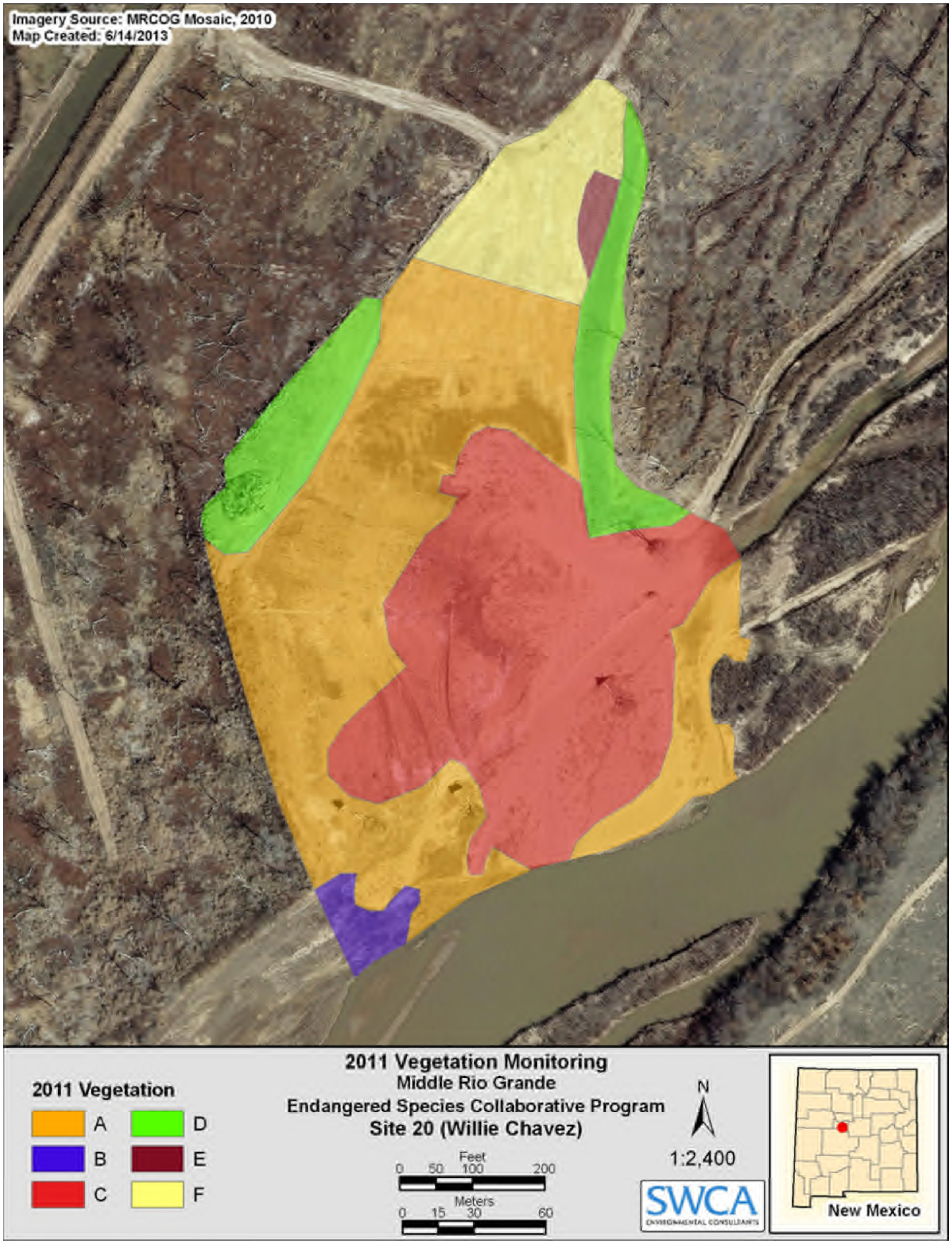

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation
A
B
C
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 17 (PER 16)
Feet
0 40 80 160
Meters
0 10 20 40
N
1:1,500
New Mexico

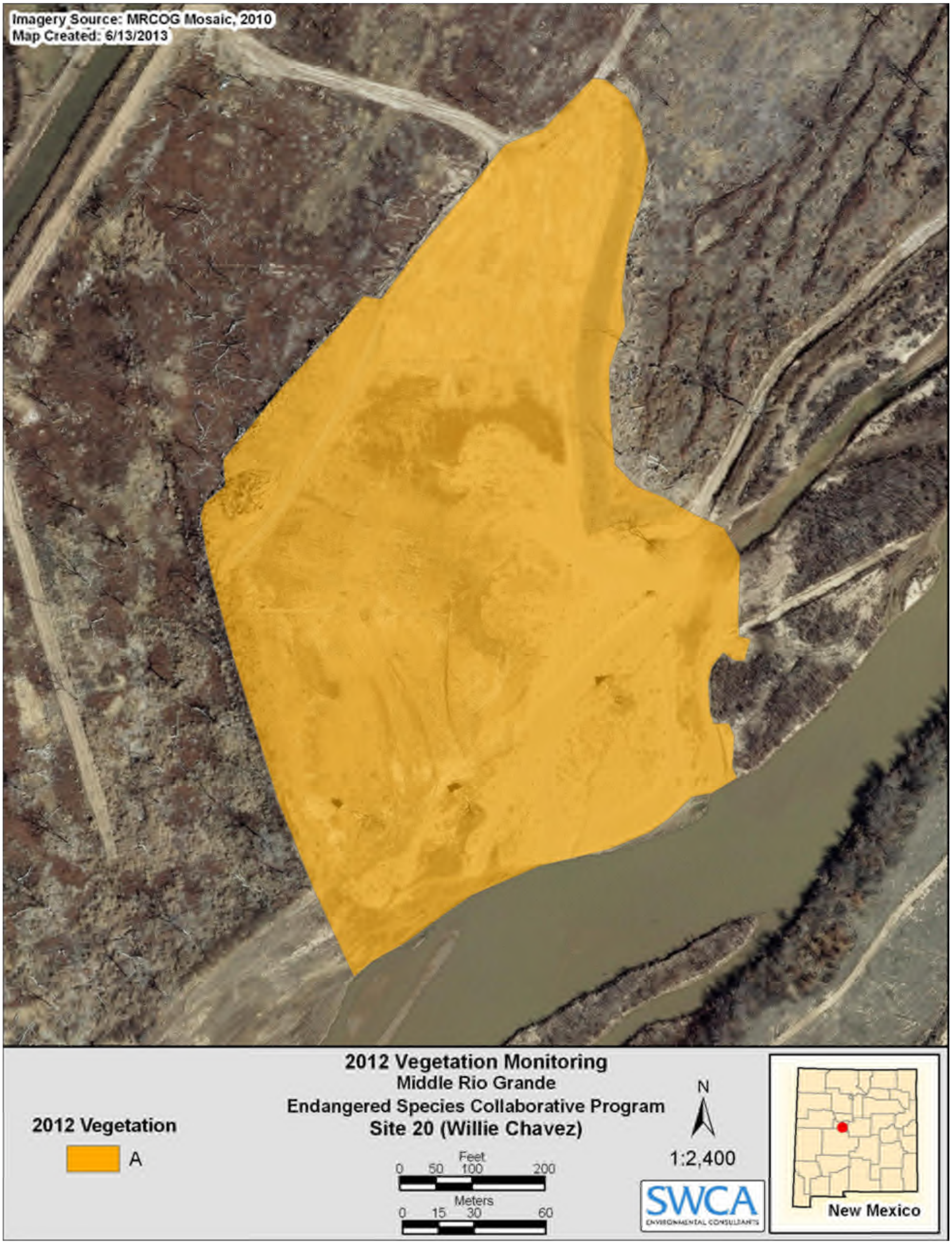

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 18 (LP1 1)
2011 Vegetation
A
B
N
1:2,000
Feet
0 50 100 200
Meters
0 15 30 60
SWCA
New Mexico

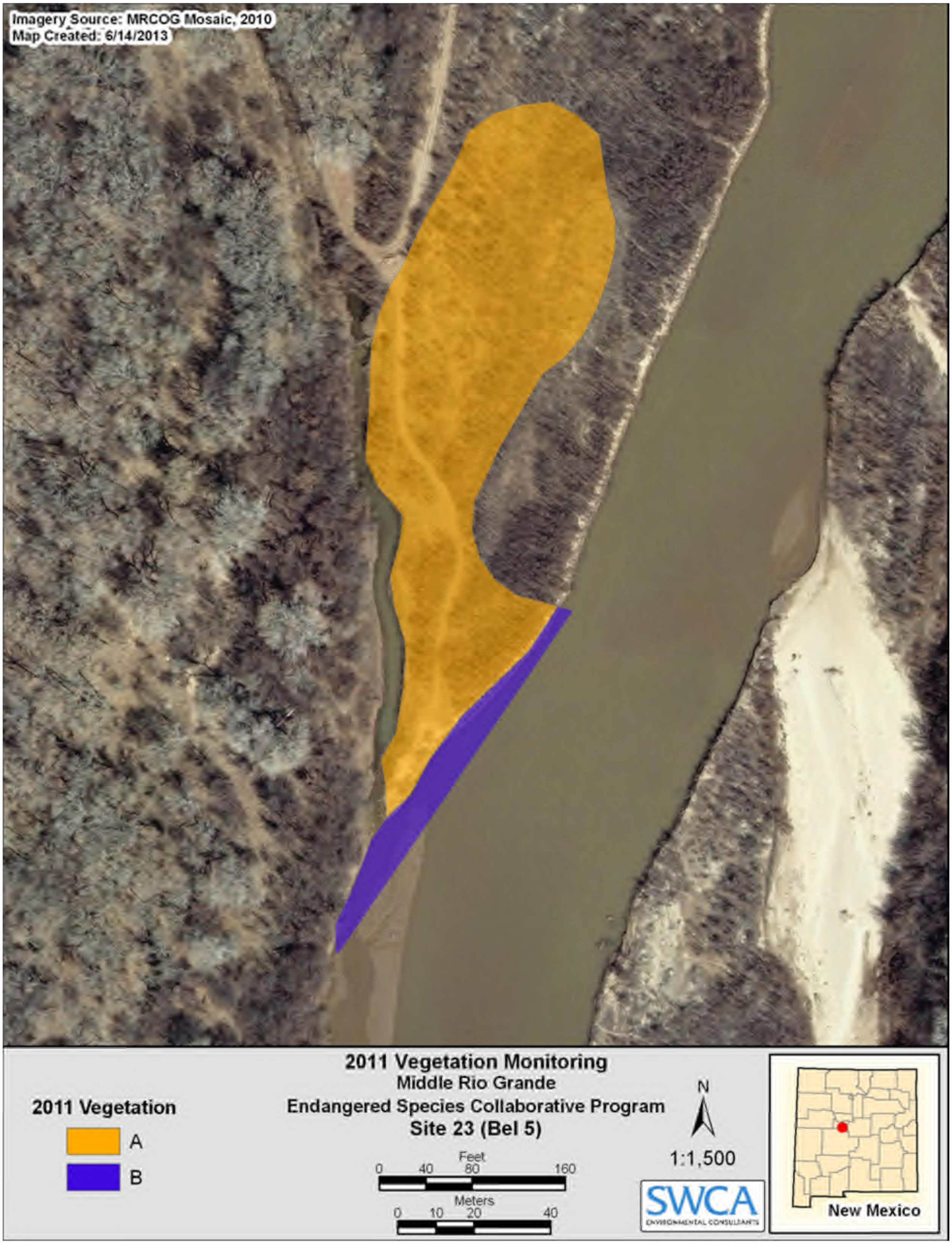

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation
A
B
C
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 18 (LP1 1)
Feet
0 50 100 200
Meters
0 15 30 60
N
1:2,000
SWCA
New Mexico

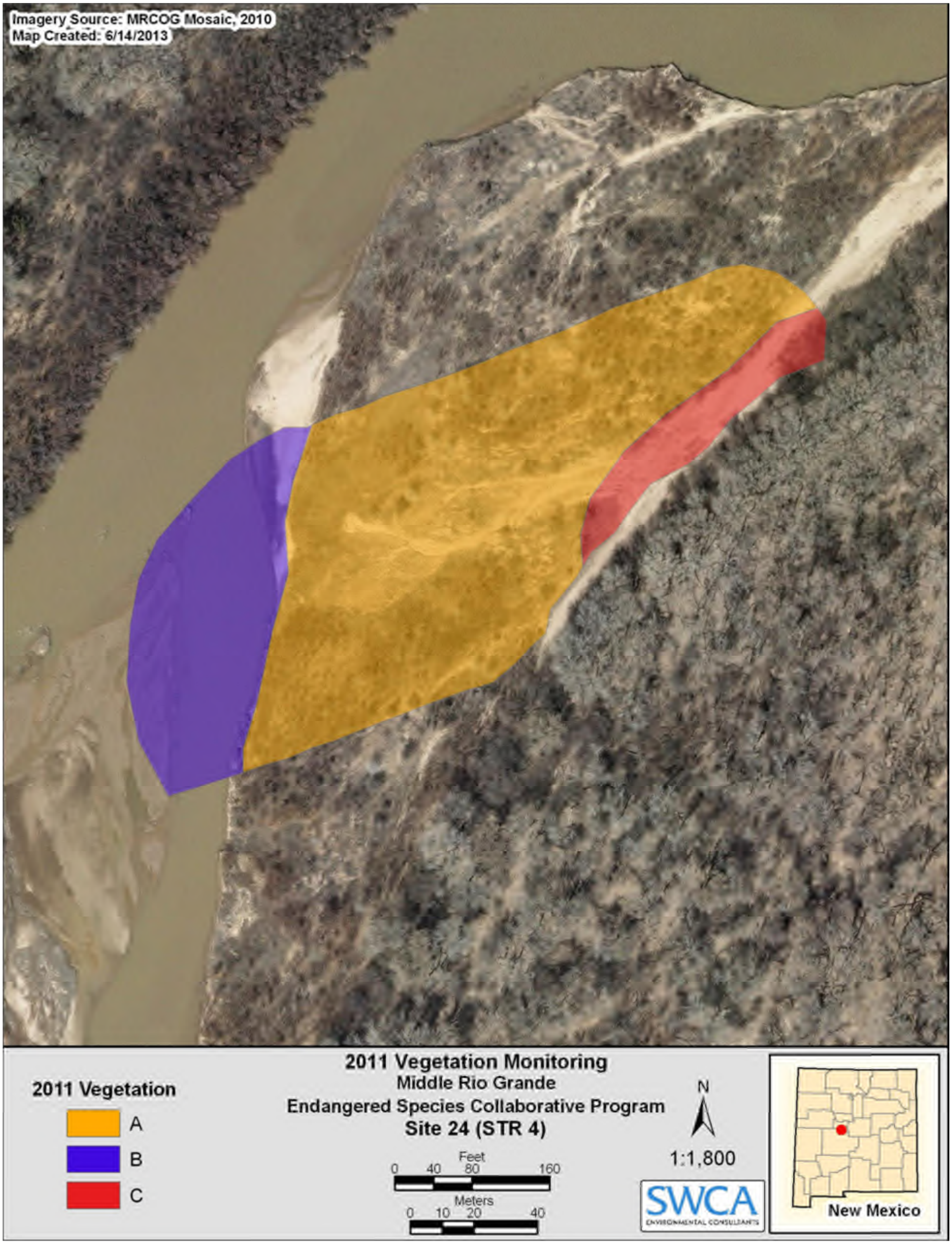

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 19 (LP1 3)
2011 Vegetation
A
B
N
1:2,100
Feet
0 50 100 200
Meters
0 15 30 60
SWCA
New Mexico

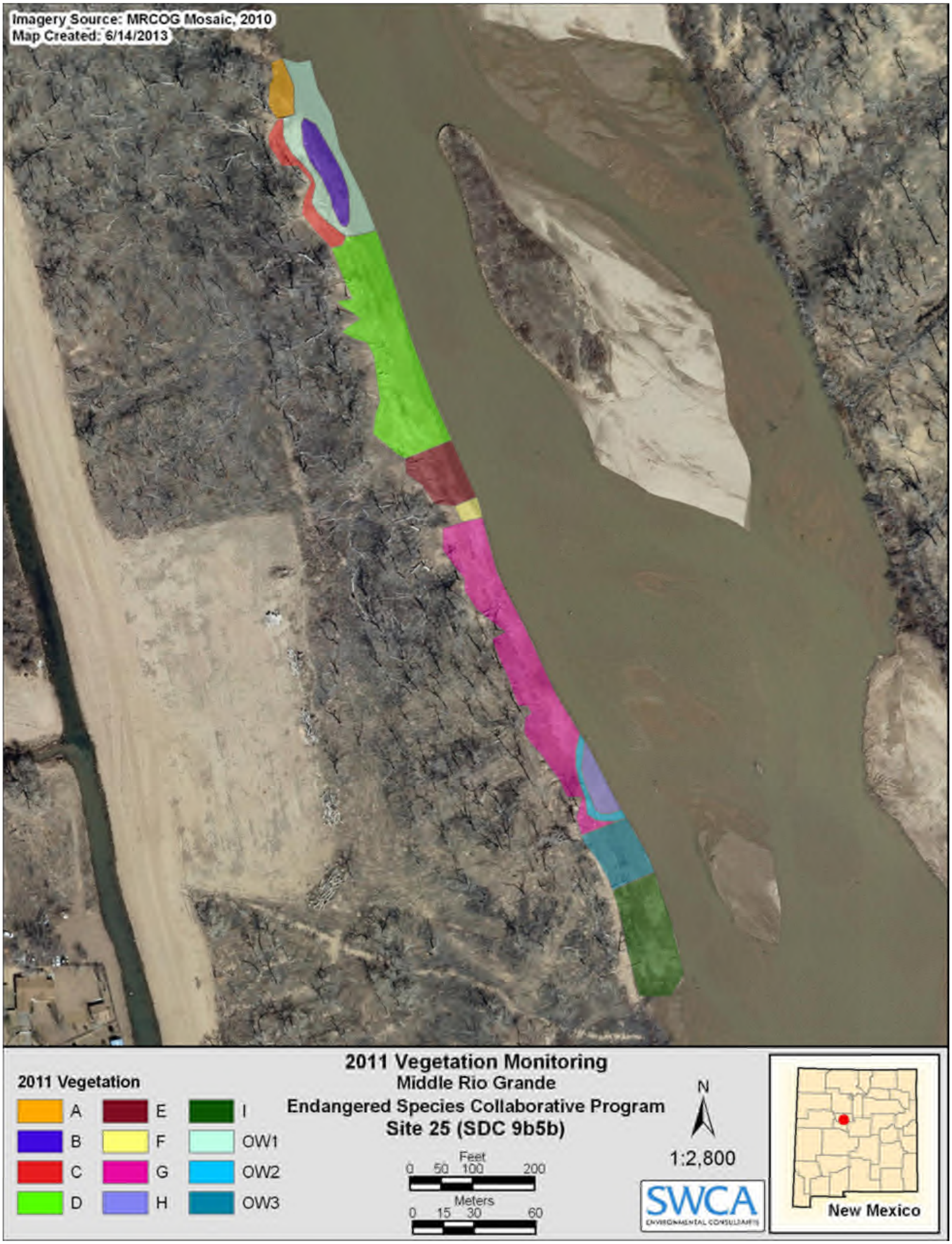

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 19 (LP1 3)
2012 Vegetation
A
B
N
1:2,100
Feet
0 50 100 200
Meters
0 15 30 60
SWCA
New Mexico

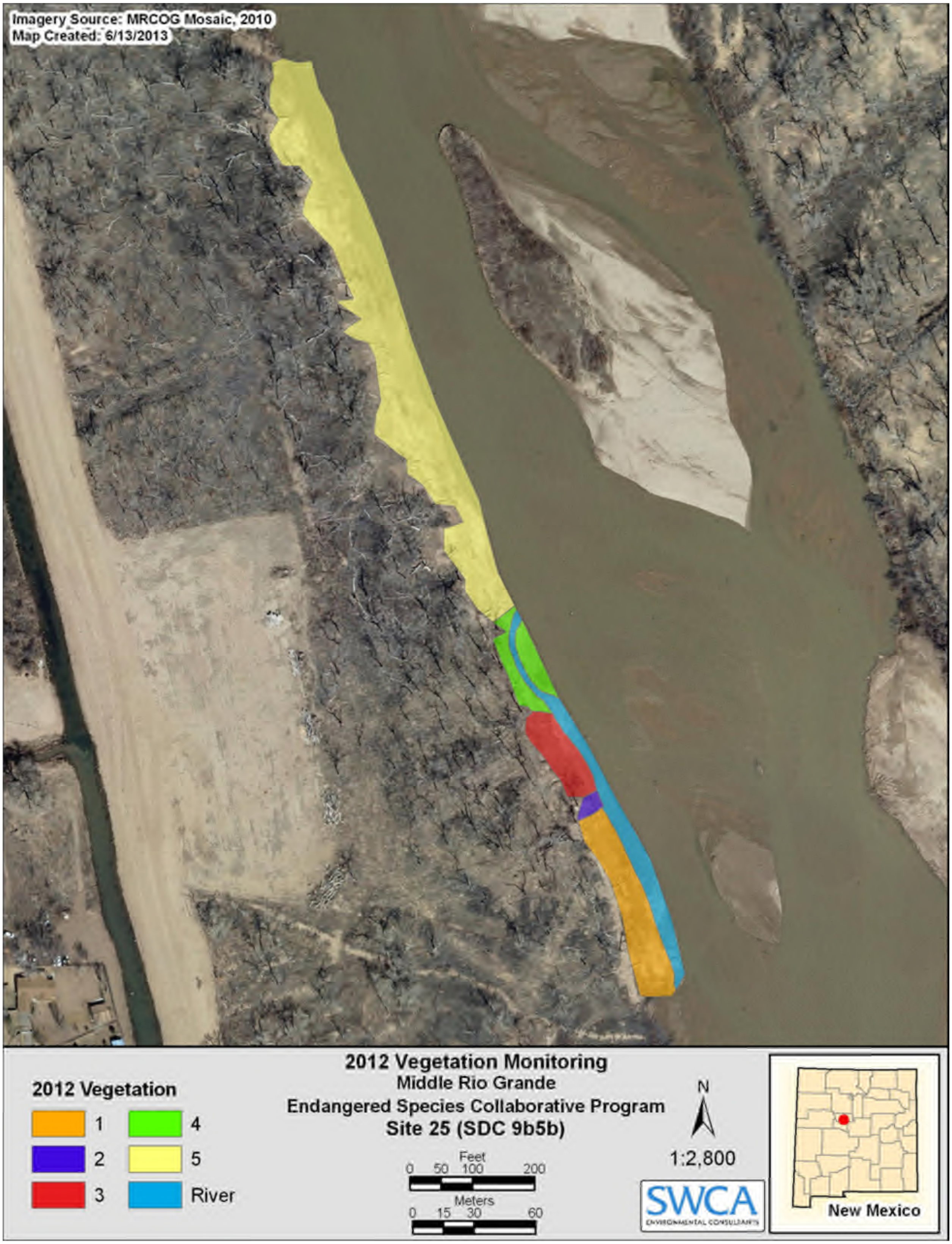

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation
A
B
C
D
E
F
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 20 (Willie Chavez)
Feet
0 50 100 200
Meters
0 15 30 60
N
1:2,400
SWCA
New Mexico

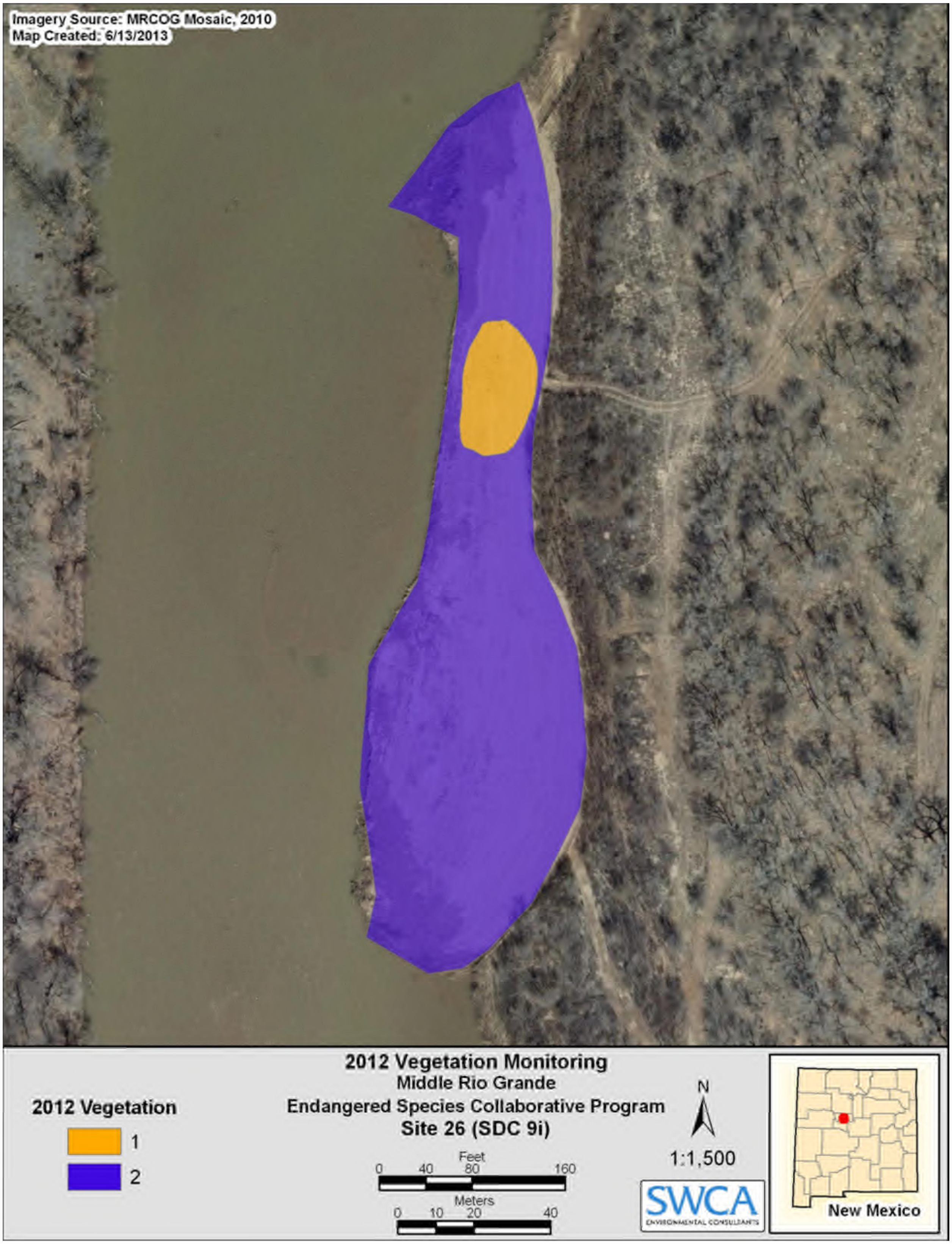

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 20 (Willie Chavez)
2012 Vegetation
A
Feet
0 50 100 200
Meters
0 15 30 60
N
1:2,400
SWCA
New Mexico

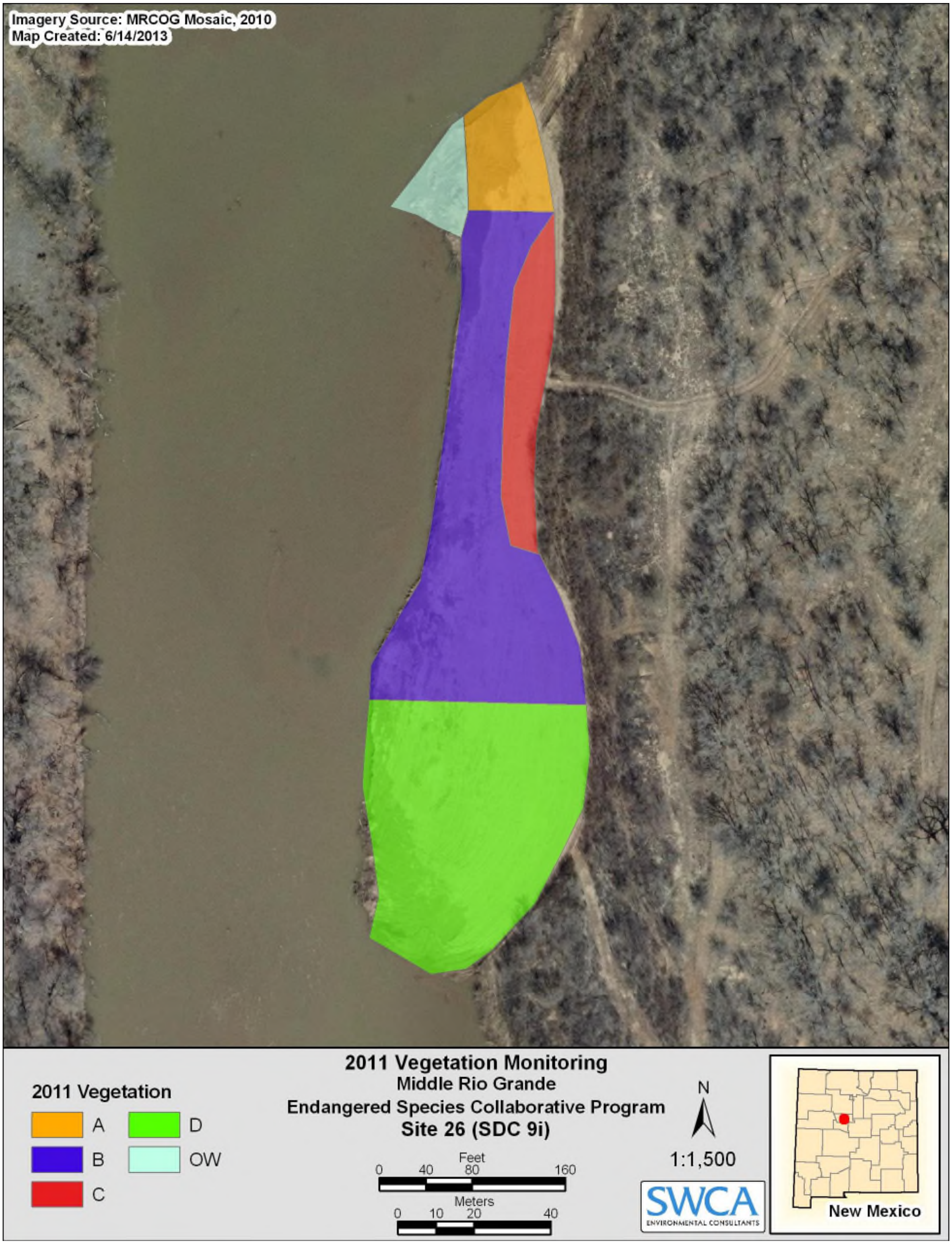

Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 23 (Bel 5)
2011 Vegetation
A
B
Feet
0 40 80 160
Meters
0 10 20 40
N
1:1,500
SWCA
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 24 (STR 4)
2011 Vegetation
A
B
C
N
1:1,800
Feet
0 40 80 160
Meters
0 10 20 40
SWCA
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation
A
B
C
D
E
F
G
H
I
OW1
OW2
OW3
2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 25 (SDC 9b5b)
Feet
0 50 100 200
Meters
0 15 30 60
N
1:2,800
SWCA
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 25 (SDC 9b5b)
2012 Vegetation
1
2
3
4
5
River
Feet
0 50 100 200
Meters
0 15 30 60
N
1:2,800
SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/13/2013
2012 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 26 (SDC 9i)
2012 Vegetation
1
2
N
1:1,500
Feet
0 40 80 160
Meters
0 10 20 40
SWCA
New Mexico


Imagery Source: MRCOG Mosaic, 2010
Map Created: 6/14/2013
2011 Vegetation
A
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2011 Vegetation Monitoring
Middle Rio Grande
Endangered Species Collaborative Program
Site 26 (SDC 9i)
Feet
0 40 80 160
Meters
0 10 20 40
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SWCA
ENVIRONMENTAL CONSULTANTS
New Mexico

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APPENDIX 5
REPORT COMMENTS

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DOCUMENT REVIEW COMMENTS	**DATE:**9/12/2014
DOCUMENT TITLE: MIDDLE RIO GRANDE ENDANGERED SPECIES COLLABORATIVE PROGRAM HABITAT RESTORATION EFFECTIVENESS MONITORING: 2010–2012 DRAFT REPORT by SWCA	
DOCUMENT DATE: November 14, 2013	
REVIEWED BY: Middle Rio Grande Endangered Species Collaborative Program	
AGENCY NAME: Multiple	
LEGEND *(for ACTION column below)* A-APPROVED D-DISAPPROVED C-CONCUR E-EXCEPTION	

ITEM NO.	**Chapter, Section, Page, Table, Figure or Drawing No.**	**COMMENT**	**ACTION**
1	Executive Summary.	"At this time, the Program has not yet developed a final habitat restoration effectiveness monitoring plan, specific habitat restoration objectives, or effectiveness monitoring evaluation criteria. Under these circumstances, clear objectives to guide the analysis of habitat restoration monitoring data or evaluation criteria will need to be developed to assess restoration success. *Therefore, our analysis focused on describing characteristics of the habitat restoration features monitored based on the monitoring data that were available."*This report states as its purpose, *"to focus on describing characteristics of the habitat restoration features monitored*..." Therefore, all other speculative statements or discussion not based on the data available should be removed from this report (or the purposes redefined). If there are inadequate data or information to form the basis of a recommendation, then those recommendations should be removed from this report. The authors may be biased in their recommendations of themselves for such work and therefore, an independent process for proposals should be pursued. If Corps desires to solicit ideas and study designs for monitoring restoration habitats, it should do so in accordance with its procurement policies and solicit such expertise fairly from a wider variety of sources.This report should answer some fundamental questions:What area of restored habitats were created?What area of restored habitats were surveyed?How often were surveys conducted over time?What do the survey results mean?Are the survey results satisfactory in relation to the survey goals?How will the study design be specifically altered to address poor performance of either themonitoring or the restoration goals?	Do not concur. A key task for the authors of the data analysis report, which was stated in the Scope of Work, was to provide recommendations for habitat restoration effectiveness monitoring. Therefore, the authors of this report were required to make statements about how such HREM should be conducted, based on other similar HREM projects both within and outside of the MRG. Recommendations were based on a large body of peer-reviewed published information and are not solely the ideas (or "biases") of the authors. Such references are clearly cited in the report. The goal of this report will be modified to state that the report purpose, based on the Scope of Work for this project was funded by the Corps for the Program and was to "1) analyze the existing data collected by Program signatories; 2) to assess how these data may help to define and improve a future monitoring program; and 3) to provide recommendations to assist the Program to develop a conceptual framework for a long term habitat restoration monitoring program for the Collaborative Program Habitat Restoration project sites." The authors drew from published literature on habitat restoration effectiveness monitoring and from experience in developing similar comprehensive monitoring approaches for Program signatories within the MRG. Other comments provided are philosophical in nature indicating biases of the commenter, which sometimes differ from the report authors, or out of scope for this report. The report has been changed to state "For this project existing data provided by the Program was electronically compiled and summarized to assess how these data may help to define and improve a future monitoring program for the Collaborative Program Habitat Restoration project sites. In addition, recommendations are provided to assist in providing a conceptual framework for a long term habitat restoration monitoring program based on adaptive management principles."

ITEM NO.	Chapter, Section, Page, Table, Figure or Drawing No.	COMMENT	ACTION
1	continued	Here are some strategies that can help you write an effective conclusion for your survey:1.Focus On Satisfying Your Survey GoalThe conclusion must answer the queries presented by your survey goals and objectives. In writing the conclusion, your mind must be set on fulfilling the very purpose of conducting the survey. With the survey goal in mind, you will be able to avoid common mistakes such as adding new information that were not previously stated earlier in the survey, or worse, creating a new thesis.2.Make a Synthesis, not a SummaryOftentimes, the conclusion is mistaken as the summary of the survey report. Although it contains the vital points of the survey, the conclusion must be a synthesis of the survey results, the interpretation of such, and the proposal of a course of action or solution to the issues that emerged from the survey.3.Use an Academic Tone in Writing the ConclusionSurveys are performed for scientific purposes, thus, they must be written using a professional and academic style that include references in support of ideas and conclusions. Doing this will boost the credibility of your surveys, rather than suggesting species life history philosophies in hopes of increasing the appeal of the results.	Do not concur. No attempt was made to “increase the appeal of the results.” The strategies outlined by the reviewer do not take into account the scope of work. The scope of work was to review and analyze surveys conducted by Program signatories and to provide recommendations for a comprehensive monitoring approach based on adaptive management principles. We would agree that survey goals and objectives are important. Strategies are not considered and are outside the scope of work.
2	Executive Summary.	“Silvery minnow collections differed among habitat restoration sites sampled in 2010 with the greatest relative abundance occurring at the Los Lunas and I-40-1ch habitat restoration sites.” As the study design was biased, we cannot be certain of this conclusion. Once it was determined that the study design was biased (non random sampling) and that those data collected with not normally distributed, then the statistical results associated with those data are suspect and cannot be attributed to site treatment.	An attempt was made to randomly select sites as much as possible as described in comment 12. From the data provided by the Program, silvery minnow were collected at the greatest relative abundance from sites Los Lunas and I-40-1ch. Non parametric, tests (which are not specific to requiring a normal distribution as part of a test assumption) were used to compare quantities of fish collected from these sites. The tests used are stated in the methods and can be reviewed in detail by studying the cited statistical manual. Any of the inferential statistics used are only being used in reference to the sites sampled during surveys and not the population of habitat restoration treatments/sites in the MRG. That being said we can be certain of the conclusions presented in the report that “Silvery minnow collections differed among **habitat restoration sites sampled in 2010** with the **greatest relative abundance occurring at the Los Lunas and I-40-1ch habitat restoration sites**.”
3	Executive Summary.	“It is recommended that habitat restoration sites be sampled relative to intended restoration prescription so that future restoration projects can refine construction methods to increase suitable floodplain habitat for silvery minnow.” This statement immediately veers from the stated purpose. Should the effectiveness monitoring weigh in on construction methods when the data were not collected to address this hypothesis or should the study design be changed to include this approach?	Do not concur. Existing statement is consistent with the revised goal of this report regarding recommendations for providing recommendations to develop a comprehensive monitoring program. See Comment #1

ITEM NO.	Chapter, Section, Page, Table, Figure or Drawing No.	COMMENT	ACTION
4	Executive Summary.	"The only statistically significant findings were that coyote willow decreased at bank destabilization features, while cottonwood increased on island destabilization features."How can this statement be supported when the previous information described how the vegetation data were collected without standard operating procedures and the vegetation patches were not comparable? Applying statistical tests to lack of study designs and poorly conducted sampling does not make a statistical association verifiable. What other data and literature supports such findings in the MRG to assist this statement?	Do not concur. Those data were the only data tested that resulted in significant test differences, despite a poor sampling design. We did not say that those data were from properly designed sampling. That statement was consistent with our statements that the sampling was not appropriate. These were the only obvious trends from the data provided by the Program. Poorly conducted study designs make it more likely that statistical or trends in a particular quantity will not be found because they will be masked by the added variability of data resulting from the lack of consistency among sample collections, and poor study design. The point of stating "vegetation data were collected without standard operating procedures and the vegetation patches were not comparable" was to simply illustrate that this needs to be done in order to increase the ability of a monitoring program to determine its efficacy. Nonetheless statistical models can still be applied to some of the data that did happen to have enough replication, despite the poor sampling design. Just because some test results were significant does not mean the sampling for those data was conducted properly. And, we did conclude that the HREM results were inconclusive for that reason.
5	Executive Summary.	"There were no recorded observations of saltcedar leaf beetles at any of the sites in 2012 when such records began." Those data to support this statement are in error, that is, there are insufficient observations to state there were no beetles were at the sites, as observed, in October. See page 80: "No information was provided as to what criteria were used to evaluate sites and polygons for saltcedar leaf beetle evidence." Therefore, this statement is incorrect as provided in here.	Do not concur. Recorded data sheets included the category presence/absence of saltcedar leaf beetles when features were visited for the collection of vegetation data. If no sign of saltcedar leaf beetles was evident, then leaf beetles were considered to be absent, as we reported from the data. To avoid confusion, the sentence has been changed to "There were no recorded observations of saltcedar leaf beetles at any of the sites in 2012." There were no details on field protocols for how sites were evaluated for the presence of saltcedar leaf beetles. However, sites were in fact evaluated for the presence of saltcedar leaf beetles, and that is what we reported on. While leaf beetle were observed at some of the sites during the year they were not observed during the sampling period at each site as that was conducted after the beetle presences survey period (May – August).
6	Executive Summary.	"Evaluation criteria may include both qualitative descriptive conditions relative to the known habitat requirements for the species of concern, and/or quantitative measurements of habitat parameters with known ranges of values that define suitable habitat for the species of concern." The majority of the evaluation criteria used should be quantitative relative to the know habitat requirements of the species. If qualitative measures are identified, the monitoring efforts should standardize the methods of data collection and use appropriate tests.	No Change.

ITEM NO.	Chapter, Section, Page, Table, Figure or Drawing No.	COMMENT	ACTION
7	Executive Summary.	"To potentially aid future habitat restoration monitoring and assessment efforts by the Program, Section 5.1 of this report presents examples of relevant habitat effectiveness monitoring criteria and appropriate methods to assess these criteria for both the Rio Grande silvery minnow and the Southwestern Willow Flycatcher."This section is entirely outside the purpose of the document and has profound errors associated with what it assumes are evaluation criteria for these species. The criteria should be established and then the study design should be able to test the measures of association, the direction of influence from each treatment, and whether the restoration goals are maintained when other variables are held constant. Without a more robust scientific approach to the study design and results of the standardized monitoring efforts, all other information provided should be struck from this report. If Corps desires to solicit study designs for monitoring it should do so according to its procurement protocols, rather than allow authors to present their bias in this report.	Do Not Concur. Again, note that the review of Program monitoring methods and results was conducted for the Program (and funded by the Corps.) Existing statement is consistent with the report goals, see item 1. A task of the analysis report was to provide recommendations for HREM, as we did for the minnow and flycatcher. The statement being contested by the reviewer is not outside the purpose of the document, the authors were asked to make HREM recommendations. And, as stated in item 1 above, the recommendations were based on peer-reviewed scientific literature, and there are no profound errors as the reviewer claims. If the reviewer believes there are profound errors, the reviewer should have pointed those out explicitly and provided appropriate corrections.
8	Introduction, page 1.	"Water impoundments and diversions, channelization, and bank stabilization have all contributed to dramatic changes in riverine function and processes in the MRG. These actions have largely isolated the contemporary MRG from its floodplain and led to the endangered status of the silvery minnow and flycatcher under the Endangered Species Act." The statement made is inaccurate. Citations of support should be provided. Citations should specify exactly how the actions of impoundment, diversion, channelization, and bank stabilization have isolated the MRG from its floodplain. While it is possible that the isolation of the MRG from its floodplain is a recognizable factor now (and data in support should be provided in support), it was not specifically listed as a rationale in the final rule for the endangered status of either species. Citation for the factors used for listing as endangered for both species should be compared with this factor to support this statement.	Richard and Julien 2003 has been cited (International Journal of Sediment Research, Vol. 18, No. 2, 2003, pp. 89-96). The sentence has been changed to "These actions have largely isolated the contemporary MRG from its floodplain and likely contributed to the endangered status of the silvery minnow and flycatcher under the Endangered Species Act."
9	Introduction, page 1.	"Connecting the floodplain to the river channel represents an effective restoration strategy to create essential low-velocity silvery minnow habitat during high flows, potentially improving the survival of eggs and larvae in those areas."How specifically will the floodplain be connected? Where is that action identified as an restoration strategy and how specifically will its effectiveness be monitored? How many eggs are larvae will be accommodated by habitat restoration areas that are not currently inundated? Where, specifically, will these low velocity areas be placed? What is the frequency of inundation and during which periods? How much area is needed to be effective for silvery minnow nursery habitat? What are the mechanisms of improving survival of eggs and larvae? What are the water quality conditions of water temperature, oxygen, nutrients, and lack of ultraviolet radiation that will optimize egg hatch, development and shelter for larvae? How will those conditions be optimized by the restoration design and at what frequency during high flows? How often will high flows inundate restoration sites compared to the prior treatment? These questions should be answered by the study design prior to monitoring and the results used to support the statements made in this report.	The Requested information is out of scope for the project. However, many of the suggestions could be the basis for hypothesis testing in an adaptive management approach. Thank you.

ITEM NO.	Chapter, Section, Page, Table, Figure or Drawing No.	COMMENT	ACTION
10	Introduction, page 1.	"A generic analysis of the available fisheries data and recommendation for site selection, future data summarization, and sampling approaches are provided." Such a generic analysis strays from the purpose of the report and Corps is not well served by having a limited review of its monitoring strategies provided here. Such information should be solicited from a wider variety of scientists and contractors to receive the benefit of the best available scientific and unbiased information.	Do Not Concur. Refer to comments in Comment 1 for discussion of the goals and objectives of the report and the data collected by the Program.
11	Introduction, page 2.	"The goal of this analysis was to evaluate changes in terrestrial vegetation among the different HR features over the 3-year period and compare dominant native plant species to dominant exotic plant species. This does not meet the stated objective/purpose of flycatcher habitat, but rather is an inadequate vegetation monitoring survey used as a surrogate. And there are plenty of data to collect monitoring information that would be useful instead, such as total canopy cover, small stem density, and various properties of the understory, etc (Sogge et al. 2007; 2010). For conducting a vegetation field study it is important to have (or set) goals, clarify the ecological objectives, set the scope of your project, gather existing information, choose the sampling unit and measurement technique, create the sampling plan, conduct the field work using standardized methods and observations, organize and analyze the data correctly, and report the conclusions; all other information should be removed from this report.	The objectives were provided by the Program's MPT team that produced the 2012 report. The comment regarding the objective/purpose of flycatcher habitat does not reflect an accurate understanding of the scope of this review. We agree that identifying the data to collect would be useful in assessing the condition of flycatcher habitat. We would also agree with the general approach to setting goals and objectives, developing sampling plans, standardizing methods, etc. We do not agree with the conclusion that all other information be removed from the report as this would not be responsive to the Corps' mandate for this project.
12	Introduction, page 2.	"The Program's MPT (2012) provided the following description for HR effectiveness monitoring site selection:"A total of 63 Program-funded restoration sites throughout the MRG were considered for this monitoring effort. Each site was numbered sequentially from north to south and a random number generator was used to select a subset for monitoring. The MPT reviewed the list and eliminated any sites that were logistically not feasible to sample (e.g., area was too small, the site would not be accessible during high flows, etc.). After the list had been examined, the first 20 randomly-selected sites were identified for monitoring (Table 1, Appendices A and B)."The study design method deployed was a nonrandom procedure for non-probability sampling, which results in all data collected for this report not being biased and non-representative. Sampling designs such as this are for convenience sampling. The result is poor accuracy and bias in the monitoring data collected, which reflects on the ability to detect differences observed between the sample estimate and the true population value due to error in measurement, selection of a non-representative sample, or factors other than sample size. Bias introduces a constant source of error into measurements or results. Bias in monitoring surveys is a threat to internal validity because it poses an alternative explanation for the results that what was found. Threats to internal validity of these data are essentially threats to the controls necessary for hypothesis testing and relating effects to restoration treatments. This means that we do not know for sure what caused the effects that were observed in this report. And once bias has been introduced into a study design, it cannot be controlled. Therefore, the study design will need to be revised. Further, methods of data collection should be standardized with established survey procedures, and adequate training provided to every member of the survey team and documented, and with quality assurance and controls applied from those supervising the survey work.	Not sure what type of bias the reviewer is concerned with. Is it estimator bias? Is it survey bias? Is it observation bias? While we do agree that bias is a threat to the validity of data and its interpretation we don't agree that just because bias is present in a data set it renders a data set useless. Bias is present in most data sets, which is why assumptions are commonplace in in ecology. Instead understanding these bias and the caveats that pertain to a data set are needed to properly interpret results.

ITEM NO.	Chapter, Section, Page, Table, Figure or Drawing No.	COMMENT	ACTION
	Introduction, page 2. Continued	The fundamental, scientific methods of observation were not adhered to in this study and should be reviewed in this report. Were the objectives clearly defined and fully understood? Will the data you collect answer your scientific question? Based on a pilot study, is the sample size and spatial unit adequate? Is the measurement method understood and practiced? Were the observers familiar with the study site and aware of complications and how were those addressed? Were and how can the sampling units been randomized? When and how will interspersion be evaluated? Do the data analysis match the objectives? Were there errors or limitations in the approach to answering the scientific question? What can you conclude from your sampling and analysis? These are the types of questions that should be refined for a new study design for restoration site monitoring that is required under the 2003 BO.Due to the representativeness of a sample obtained by simple random sampling, it is reasonable to make generalizations from the results of the sample back to the population. The design is the structure of any scientific work. It gives direction and systematizes the research. The choices made by the MPT violated the fair way of selecting a sample from a given population and did not give site equal opportunities of being selected for analysis.This biased the data collected and violated the assumptions necessary for scientific observation. The deliberate bias of not sampling sites that would be difficult to access during high flows negates the objective information that would be collected on the function of restoration sites during high flows. The further failure to conduct sampling at all 20 sites reduced the power to detect any information of value. An unbiased random selection and a representative sample is important in drawing conclusions from the results of a study. Remember that one of the goals of research is to be able to make conclusions pertaining to the population from the results obtained from a sample. Corps should revise the study design through its procurement protocols and use the best available scientific information.	We agree that a stronger study design would yield better results. Again, review the goals and objectives discussed in Comment #1. The point of this project was to review the methods and results in order to develop recommendations of how to improve the methods to provide meaningful information for HR projects, while still keeping a fairly rapid and low cost monitoring program.
13	Page 3	Table 2.1 indicates that only 3 sites had comparable fish surveys conducted upon them for 2 years. Given the variability of species occupancy, this calls into question the results.	No comparisons were made between years 2010 and 2011.
14	Page 12	Fisheries monitoring varied, used poor techniques, was not standardized (fyke net used as a seine) and had no comparability across years. This calls into question the results reported.	The results are simply a summary of what was provided to us by the Program.
15	Page 13 & 14	The citation of (MBT 2012) is not in references cited. Assume it should be MPT 2012	Changed to "MPT"

ITEM NO.	Chapter, Section, Page, Table, Figure or Drawing No.	COMMENT	ACTION
16	Page 13 - 19	"No beach seine data were provided for collections in 2010. Beach seine and fyke net data were both provided for 2011, and no fisheries data were provided for 2012. No distinction was made as to which beach seine samples collected in 2011 were collected from random or from grid sites nor was information provided regarding the level of effort at each site.""The numeric data for this vegetation monitoring study are represented by small sample sizes, unbalanced presence and absence of data for given parameters over the 3-year period, and proportion (%) and categorical class values. Only the woody vegetation canopy cover data, by species, and total herbaceous canopy cover data from sites with certain features (bank destabilization, island destabilization, and high-flow channels) had enough replication to perform limited statistical testing for differences in vegetation cover over time. These data were not appropriate for standard parametric statistical testing utilizing variable means and variances."Given the information provided in the description of methods, in addition to the biased study design based on nonrandom selection, the collection of data that were imprecise, this renders the study and the report unusable. This study was a waste of government resources.	These data were not collected for that purpose. The sites were monitored to compare changes over time and to evaluate methods for determining if the projects provide "effective" habitat.
17		Any evidence of the beetles (leaf feeding, larvae or adult beetles) was recorded on data forms for each of the sites. As no methods were provided, these data are qualification only. Therefore, the statement that no beetles were observed in the executive summary is unsupported and does not refute the null hypothesis, and therefore, summary statements provided are inaccurate.	Do not concur. See item 5 above. Please see comment regarding beetles in the executive summary. No beetles were observed and that was what was reported. Nowhere in the report is it stated that leaf beetles were not present, it is simply stated that no leaf beetles were recorded on any of the provided data sheets.
18	P25	Units of depth should be provided on (Table 3.3). Ranges of data should be provided. Appendices of those data, the quality assurance and quality control of those measures should also be provided. Are those water temperatures provided as ranges of means? If so, how are they comparable to criteria ranges?	Temperature data collected were point observations and would provide little value relative to the mean and ranges, and would have more to do with the time of day they were collected.
19	p. 28 and p. 51.	"Coyote willow cover ... declined (at habitat restoration sites) from 2010 to 2012. . . . The only statistically significant trends were for a decrease in coyote willow cover among bank destabilization features from 2010 to 2012, and an increase in cottonwood cover among island destabilization features from 2010 to 2012. All other tests were insignificant at the alpha 0.05 level."From this result the finding would be that Corps habitat restoration sites are not creating even migratory habitat for flycatcher? The total acreage of vegetation (or polygons) should be summarized and provided and compared to the amount that was planted. On page 186 – perhaps 96 acres were surveyed? These summary statistics of the observations should be provided.	Do Not Concur. The sites evaluated were Collaborative Program Habitat Restoration sites, not Corps habitat restoration sites. See item 4 above. We do not agree that any conclusions can be made from the data analyzed that the habitat restoration project implemented by Program signatories either do or do not provide habitat for the flycatcher. The results are reported only for those sites sampled. And the point of this document was to review the methods used to evaluate habitat restoration project sites in order to provide recommendations in regard to better and more efficient means of monitoring the 'effectiveness' of the habitats constructed by the Program.
20	p. 81	"Consistently high catches at the Los Lunas HR site (Hatch and Gonzales 2009, 2010) indicate that this site may provide insight into what constitutes an effective mosaic of habitat attributes that provide suitable habitat for refuge, spawning, and recruitment for silvery minnow during spring runoff." Perhaps, but describe how the mosaic of habitat types collected from one site represents the entirety of available or potential sites along the MRG? What is the power of this statement?	The Los Lunas HR site has a variety of available habitats and the statement is simply illustrating that this HR site could perhaps be used as a model for other proposed HR sites in the MRG.

ITEM NO.	Chapter, Section, Page, Table, Figure or Drawing No.	COMMENT	ACTION
21		There are no citations provided within the discussion to support the idle speculations made. Citations for much of the discussion should be provided on page 93, the discussion is rambling and reveals a confused narrative with little scientific support. Delete it.	Do Not Concur. In the absence of agreed upon monitoring criteria to evaluate the effectiveness of habitat restoration projects, the Program requested suggestions for evaluation criteria that may be used in an adaptive management program. The summary is based on a comprehensive monitoring plan prepared for the Pueblo of Sandia and funded by the Program. Reviewer is directed to that document for a full discussion.
22	p. 92	"Design flows are 1,400 cubic feet per second (cfs), 2,500 cfs, and 3,500 cfs, representing the 6.8% inundation frequency to meet the 25-day duration threshold for dry, normal, and wet years, respectively." Those flow relationships are likely no longer valid and need to be updated in study design. The inundation targets before and after restoration should be provided in this section.	The comment regarding the validity of flow relationships may be true. Revised text to summarize the design criteria for what has been implemented by the Program signatories to date.
23	p.93	"Desired habitat features are composed of a variety of depths averaging ≤ 0.30 m (0.98 foot) (not to exceed 0.8 m [2.6 feet]) and low velocities (≤ 0.30 m/s) ± 2 × standard error (SE) (Hatch and Gonzales 2008, 2010). ""It is hypothesized that high longitudinal spatial heterogeneity of river channel features (e.g., defined by the ratio of river width to depth over different flow regimes) would allow for dispersal success of the silvery minnow to habitat patches favorable to species survival as the site-specific habitat features change over variable hydrologic conditions."Note the biased comparisons to the authors own works. Consider comparing to other scientific report results too, such as Bovee et al. 2007. Identify by citation, "it is hypothesized" by whom? This metric is not applicable to individual HR sites.	Do Not Concur. Hatch and Gonzales represent some of the few studies on the MRG. The study is valid as are the conclusions and hypotheses contained therein. Since other work showing silvery minnow on floodplain HR sites are lacking Gonzales and Hatch is one of the few sources available for citation here.
24	p.94 and p. 101	Creating sites that achieve 50% lethality is not advisable, and would contribute to species extinction rather than recovery. Corps projects that design sites to achieve such conditions were not appropriate for standard parametric statistical testing utilizing variable means and variances." Given the information provided in the description of methods, in addition to the biased study design based on nonrandom selection, the collection of data that were imprecise, this renders the study and the report unusable. This study was a waste of government resources.	Project sites are not those of the Corps, but rather the Program signatories and have been implemented over a period of several years. We would agree that there is a need for improving the study design and developing a comprehensive monitoring approach based on adaptive management principals. That was the goal of this document. Comments regarding the design of habitat restoration sites are not germane to the discussion.

ITEM NO.	Chapter, Section, Page, Table, Figure or Drawing No.	COMMENT	ACTION
25	94-95	This discussion about population criteria that should be used by habitat restoration should be removed. If not, describe exactly how restoration alone, in the absence of water management, will result in a measureable population response for silvery minnow. Then identify the study design necessary for monitoring at Habitat restoration sites necessary to detect a population change over time and by restoration treatment, holding all other factors in control. It cannot be done within the scope of the project, as well as the narrative provided is biased; note the lack of references, including the silvery minnow recovery plan. It is natural to seek to gather data and generate narratives that supports a theory when conducting research. Sometimes researchers are so busy verifying their theory that they forget to look at observations that contradict the theory. This is often referred to as verification error. It can happen when a scientist feels attached to a theory because they "invented" it. This section is unnecessary, doesn't meet the purpose, and should be removed.	Do Not Concur. Target species' population monitoring, also called "validation" monitoring, is a key component to HREM and should be included in recommendations for future HREM. And again, our recommendations for such monitoring are based on a body of scientific literature, not our personal biases. The discussion represents examples of criteria for a comprehensive monitoring program following an adaptive management approach. Discussion of water management is beyond the scope of this project, which again is simply to analyze the available data collected by Program signatories and provide recommendations on a comprehensive monitoring program based on adaptive management principles. The comments, here and throughout, reflect the reviewer's biases, demonstrate a lack of understanding of the report goals and objectives, and are inconsistent. They are therefore not germane to the discussion and do not add value to the report.
26	94-101	Rather than this narrative – a RFP should solicit a study design for the HR program.	See response in comment #1 regarding the scope of work and the report goals and objectives. This study was conducted in order to solicit recommendations for a study design for the Collaborative Program Habitat Restoration projects. The development of that design would be the next step.

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