

**Picayune Strand Restoration Project – Addendum to Annual Effectiveness
Assessment Summary**

Purchase Order # 4500074695

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TABLE OF CONTENTS

LIST OF FIGURES	ii
LIST OF TABLES	iii
LIST OF APPENDICES	iv
1.0 INTRODUCTION	1
2.0 METHODS	1
3.0 RESULTS AND DISCUSSION	1
3.1 WEATHER AND WATER LEVELS	2
3.2 FOLIAR TREATMENTS WITHIN PRAIRIE CANAL PHASE	3
3.3 OVERALL EXOTIC AND NUISANCE SPECIES COVER	3
3.4 PRAIRIE CANAL FOOTPRINTS AT "MAINTENANCE LEVEL"	4
3.5 SUMMARY OF TREATMENT COSTS	7
3.6 RECCOMENDATIONS	7
4.0 ACKNOWLEDGEMENTS	10
5.0 LITERATURE CITED	10

LIST OF FIGURES

Figure 1: Picayune Rainfall Summary	11
Figure 2: Water Depth at SGT2W5 (Well 9)	12
Figure 3: Water Depth at SGT3W6 (Well 16)	13
Figure 4: Water Depth at SGT4W5 (Well 22)	14
Figure 5: Area Covered by Foliar Re-Treatment (ACOE) of Priority Species in Prairie Canal Phase at PSRP, FY 2013	15
Figure 6: Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (Excluding Areas at "Maintenance Level")	16
Figure 7: Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (Upper 2 Miles of Prairie Canal)	17
Figure 8: Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (E-W roads from 104th through 116th and E of Patterson)	18
Figure 9: Individual Species Cover, Prairie Canal Footprints, Excluding Areas at "Maintenance Level"	19
Figure 10: Individual Species Cover, Prairie Canal Phase Cleared Footprints (Upper 2 Miles of Prairie Canal)	20

Figure 11: Individual Species Cover, Prairie Canal Phase Cleared Footprints (E-W roads from 104th through 116th and E of Patterson)	21
Figure 12: Area Covered by Invasive Exotics in Prairie Canal Phase Demolition Sites	22
Figure 13: Individual Species Cover, Prairie Canal Phase Demolition Sites	23
Figure 14: Area Covered by Invasive Exotics in Merritt Canal Phase Cleared Footprints	24
Figure 15: Individual Species Cover, Merritt Canal Phase Footprints	25
Figure 16: Area Covered by Invasive Exotics in Merritt Canal Phase Demolition Sites	26
Figure 17: Individual Species Cover, Merritt Canal Phase Demolition Sites	27
Figure 18: Individual Species Cover, Prairie Canal Phase Logging Tram Footprints	28
Figure 19: Individual Species Cover, Merritt Canal Phase Logging Tram Footprints	29
Figure 20: Areas at "Maintenance Level", Prairie Canal Phase Footprints	30

LIST OF TABLES

Table 1: Acres Covered by Foliar Re-Treatment (ACOE) of Priority Species in Prairie Canal Phase at PSRP, FY 2013	31
Table 2: Total Infested Acres by Cover Class and Actual Area Covered by Invasive Exotics in Prairie Canal Cleared Footprints (Excluding Areas At "Maintenance Level")	32
Table 3: Summary of Actual Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (Excluding Areas At "Maintenance Level")	33
Table 4: Total Infested Acres by Cover Class and Actual Area Covered by Invasive Exotics in Prairie Canal Cleared Footprints (Upper 2 Miles of Prairie Canal Footprint)	34
Table 5: Summary of Actual Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (Upper 2 Miles of Prairie Canal)	36
Table 6: Total Infested Acres by Cover Class and Actual Area Covered by Invasive Exotics in Prairie Canal Cleared Footprints (E-W roads from 104th through 116th and E of Patterson)	37
Table 7: Summary of Actual Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (E-W roads from 104th through 116th and E of Patterson)	38
Table 8: Individual Species Cover, Prairie Canal Footprints, Excluding Areas at "Maintenance Level"	39
Table 9: Individual Species Cover, Prairie Canal Phase footprints, Upper Two Miles of Canal	40
Table 10: Individual Species Cover, Prairie Canal Phase footprints, East of Patterson South of 102nd.	41

<i>Table 11: Individual Species Cover, Prairie Canal Phase Demolition Sites and their Buffers</i>	<i>42</i>
<i>Table 12: Individual Species Cover, Merritt Canal Phase Footprints</i>	<i>43</i>
<i>Table 13: Individual Species Cover, Merritt Canal Phase Demolition Sites and their Buffers</i>	<i>44</i>
<i>Table 14: Individual Species Cover, Prairie Canal Logging Tram Footprints.</i>	<i>45</i>
<i>Table 15: Individual Species Cover, Merritt Canal Logging Tram Footprints</i>	<i>46</i>
<i>Table 16: Approximate Costs by Treatment in FY 2013</i>	<i>47</i>

LIST OF APPENDICES

<i>Appendix I: Acceptable Maintenance Levels of Picayune Nuisance Exotic and Native Plant Species</i>	<i>50</i>
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1.0 INTRODUCTION

The Institute for Regional Conservation (IRC) was contracted (purchase order #4500074695) by South Florida Water Management District (SFWMD) to map exotic and nuisance vegetation within the Picayune Strand Restoration Project and to coordinate exotic control efforts conducted by SFWMD and Army Corps of Engineers (ACOE) contractors. The original contract start date was July 1, 2013 through September 30, 2013. However, due to a rainy summer with high water levels that hampered exotic control efforts, exotic control contractors were unable to work most of the summer. As a result, the contract completion date was extended to November 30, 2013 with no additional funds allocated to the purchase order (a budget surplus existed due to lack of contractor coordination needed).

Typically, an annual report is generated at the end of the fiscal year (September) to summarize treatments and to evaluate exotics cover estimated for that year as compared to previous years. However, due to the timing of the end of the previous contract with Environmental Resources Management (ERM) under Work Order No. 4600001953-WO3, the majority of the information for the fiscal year was presented in a report completed June 15, 2013 (ERM 2013). Because very little progress by exotic control contractors was made between June and September 2013, this report is presented as an addendum to the June 2013 report.

Additional results presented and discussed in this report include a summary of the work that was completed by exotic control contractors, as well as some additional detail on exotics cover data and trends. Discussion of portions of the Prairie Canal Phase considered to have successfully reached “maintenance” level for exotic control is included in this report. Survey methods and more detailed description of scope of work can also be found in the June report (ERM 2013).

2.0 METHODS

Survey methods and more detailed description of scope of work can also be found in the June report (ERM 2013). Included is description of the geodatabases and their feature classes used in analysis.

3.0 RESULTS AND RECCOMENDATIONS

This report summarizes work completed by IRC (purchase order #4500074695) and Applied Aquatic Management, Inc. (exotic control contractor to SFWMD) since the end of June, 2013 through September 30, 2013. Foliar treatments focused on exotic grasses especially cogongrass (*Imperata cylindrica*) and torpedograss (*Panicum repens*) at the northern portions of the Prairie canal phase footprints in more recently disturbed areas around the tie-back levee using ACOE funds. Additional work was initiated in footprints at the northern end of the Faka Union canal phase footprints, but will not be summarized

in detail because the work was cut short due to weather and only recently resumed and is ongoing.

3.1 WEATHER AND WATER LEVELS

Temperatures in general did not influence vegetation or herbicide treatments this year as they have in the past. A frost occurred on December 22, 2012, but the damage appeared to be light and only in the very open areas. The most significant impact of the freeze was making treatment of lantana more difficult with foliar spraying. Eventually, this species will be treated using Garlon IV when Brazilian pepper treatments are conducted again. High temperatures, although it did slow down work some days, was not much of an influence on treatments because very little crew activity occurred during the June to October time period.

Rainfall for the PSRP is presented in Figure 1, as presented at www.gohydrology.org. Last year's Annual Effectiveness Summary Report discussed how lack of rainfall and resulting water levels influenced vegetation the past couple of years, especially during the dry season and early summer months (specifically April and May of 2011, June and July 2012) (ERM 2012). Rainfall in 2013 was more typical with frequent heavy summer rains, actually resulting in above average totals. Weekly totals in Figure 1 show how less frequent heavy rains were in 2011 and 2012 compared to 2013. Although it appeared to have stressed some trees, it meant we were able to continue exotic control efforts during summer months. The amount of rain in 2013 is a welcome change from an overall ecological perspective (Figure 1). Foliar treatments from June through October 2013 were, however, seriously hampered by these rains, though this is typical for the rainy season.

Water levels in 2011 and 2012 remained low for the most part (October 2012 being an exception) and, thus, were not a factor in treatments or in limiting upland species cover in restored areas (ERM 2012). Water levels and hydroperiods were higher and longer in 2013 and may indeed influence vegetation in portions of PSRP. Data for water levels at 3 wells within the general area of herbicide treatments are presented in Figures 2-4. Data from SGT2W5 (Well 9) at 70th E of Patterson showed a substantial time of flooding this year, suggesting much of the cypress around Broken Wing Ranch and areas North of Stewart may have experienced a more typical wet season than the past few years (Figure 2). Data from SGT3W6 (Well 16) at 108th E of Patterson illustrates the southern portions of Prairie Canal phase also experienced summer flooding in the wet prairies and cypress habitats (Figure 3). Finally, to illustrate that Merritt phase footprints are still influenced by drainage, data for SGT4W5 (Well 22) near 116th Ave SE and DeSoto is included and shows no standing water above the ground surface. In general, vegetation in the footprints of the Merritt phase are much less likely to have been influenced by increased hydroperiod.

Because the work in the Prairie Canal phase had mostly been completed prior to the summer and no Brazilian pepper treatments (Garlon IV basal bark) were underway, water levels did not limit treatments as much as the rain itself affected foliar grass treatments.

However, water levels did indeed prevent the contractor for ACOE from completing treatments of the Prairie Canal phase logging trams south of 70th Ave SE, but most areas consisted of very few exotics anyway, except for some areas of dense caesarweed. With any luck, caesarweed (which is intolerant of long periods of flooding) in those areas of Prairie canal phase logging trams may indeed have been reduced by flooding. Survey work for fiscal year 2014 may eventually shed light on this question.

3.2 FOLIAR TREATMENTS WITHIN PRAIRIE CANAL PHASE

Foliar treatments were conducted from June 17 through July 11, 2013 using glyphosate with imazapyr targeting primarily Burma reed (*Neyraudia renaudiana*), natalgrass (*Melinis repens*), torpedograss (*Panicum repens*), cogongrass (*Imperata cylindrica*), lantana (*Lantana camara*), vaseygrass (*Paspalum urvillei*), caesarweed (*Urena lobata*). The areas covered were more recently disturbed areas, starting at the tie-back levee and the East to West ditch at the North end of Patterson and finishing with treatments along the recently installed fire break in the upper two miles of the Prairie Canal where SFWMD funded crews were unable to treat because it had just been plowed prior to their treatment (Figure 5). A total of 265 acres (Table 1) were covered as re-treatment though actual cover of exotics was generally low with only 38 acres over 5% cover of combined exotics.

Although primary targets such as cogongrass and torpedograss were low, others such as natalgrass and lantana were locally abundant. Others were widespread such as vaseygrass. Lantana, which was most abundant on the west end of the East to West roads off the north end of Patterson, required more time than the other species because care must be taken when foliar spraying to cover all the plants with herbicide. Torpedograss and Bermudagrass (*Cynodon dactylon*) were targeted more on the disturbed fire break along the Prairie canal footprint. Natalgrass was abundant in the northern roads near the tieback levee. Unfortunately, natalgrass grows fast and when in a small, sterile vegetative state it is difficult to recognize. Because it produces seed much of the year, it may require more frequent treatments to really reduce the cover.

3.3 OVERALL EXOTIC AND NUISANCE SPECIES COVER

Additional Tables (2-15) and Charts (Figures 6-19) for areas inside the footprints and at demolition sites (including their buffer areas) for both the Prairie Canal and Merritt Canal phases were provided to show cover by individual species and groupings since 2008 for Prairie Canal and since 2011 for Merritt Phase footprints. This includes areas in Prairie canal considered to be at “maintenance level” as described below in section 3.4. The trends and conclusions discussed in the June report (ERM 2013) have not changed, however, these tables and charts give more detail supporting them. These charts especially add to the discussion of individual species changes which were most important in both phases.

These data illustrate that, in general, we have made headway on more aggressive, targeted, invasive exotic species, such as cogongrass, and torpedograss while the lower

priority species such as those not listed by Florida Exotic Pest Plant Council (FLEPPC), continue to spread, since we have not been treating them. This is illustrated in both Merritt and Prairie Canal Phases and was discussed in the June 2013 report (ERM 2013).

Of the non-targeted species which have increased over the past years, smutgrass, broomweed (*Spermacoce verticilata*) and tanglehead (*Heteropogon contortus*) have overall increased the most. All of these species are upland species and the dry summers of 2011 and 2012 may have contributed to their increase at least in some low lying areas of the Prairie Canal phase while in the Merritt phase they may simply be expanding to fill the void left by recent road removal. As mentioned in previous reports, it is hoped that hydrological restoration will at least help to control these species in lower, longer hydroperiod areas (ERM 2013).

The exceptions to this trend are the higher priority species requiring more costly basal bark treatments using Garlon IV. For example, Brazilian pepper (FLEPPC category I) increased and has not been treated since 2009 in the Prairie Canal phase and not once in the Merritt phase road removal footprints. Brazilian pepper has only been partially treated in the Merritt phase demolition sites and their buffers including some treatments in the northernmost portions of the unblocked sections in 2010 down to just below 69th Ave SE more recently in 2012. Lantana also similarly increased over the past couple of years. Insufficient exotic control budgets in 2011-2013 have delayed these costly treatments.

Finally, natalgrass also contributed to the increase in FLEPPC I cover in both phases. This species is difficult to control with only one (or even with two) passes through the areas per year as has been done recently. Natalgrass flowers throughout much of the year and is difficult to see when in small, sterile vegetative condition. This usually results in many missed individuals when herbicide crews cover the area and those missed plants quickly mature, flower, and set more seed before subsequent treatments. These data suggest we may need to work harder on controlling this species.

3.4 PRAIRIE CANAL FOOTPRINTS AT “MAINTENANCE LEVEL”

Several nuisance native and exotic vegetation control plans have been developed for the Picayune Strand Restoration Project (PSRP). The original plan was to have six years of exotic and nuisance native vegetation control with the achievement of “maintenance level” being defined as three consecutive years when a site has no nuisance native or exotic vegetation within a block. The original blocks were individual sections of road, canal, or logging tram bounded by a mix of roads and/or a canal.

In August of 2013, SFWMD contractors/employee Mike Duever, Ellen Allen, and Mike Barry with communication with Jon Morton (ACOE) met to update the original nuisance native and exotic vegetation control plan (NN&EVCP) based on lessons learned since vegetation control work began in FY2008. The current proposed plan is to identify blocks of the PSRP where there are no nuisance natives or exotic species that exceed their individual maximum percent cover value defined as a maintenance level for two

consecutive years (Appendix I). All species of concern must be below their individual maximum percent cover values within a block before turning maintenance responsibility over to Florida Forest Service (FFS). Aggressive species will be required to be <1% cover for two consecutive years, while less aggressive species will be required to be <5% cover for two consecutive years.

When all nuisance native and invasive exotic species are maintained for two years below their individual maximum cover values, treatments will still be necessary to keep levels low. After all, the low levels will have been achieved by continued treatments. There is no illusion that areas will remain at low levels of nuisance natives and invasive exotics without continued treatments. If maintenance treatments are not performed by FFS regularly (IRC recommends one to two times a year for foliar treatments and every 2-3 years for Brazilian pepper and other hardwoods), mechanisms to keep areas from exceeding their individual maximum cover values were discussed at the meeting in August 2013.

At the August 2013 meeting, it was agreed that monitoring should be continued in these areas both to assist FFS in control but also to ensure maintenance is conducted in a timely manner. In the absence of treatments some species may quickly exceed maximum values, as was seen with Brazilian pepper in the Prairie Canal footprints (see 3.3 above). For an additional example, some areas of Panther Island Mitigation Bank, after 5 years since the bank was released at maintenance level to another entity, exotic control efforts have fallen behind and there was an increase in exotics. The Banker has initiated, at its own cost, a significant exotic and nuisance treatment plan. A lesson learned from this example should be to make sure areas are not left without sufficient maintenance for more than a couple seasons in order to prevent losing too much ground, which ultimately costs more to control.

Several areas within the Prairie canal phase were examined for the criteria presented in Appendix I. Boundaries were restricted to obvious features such as entire roads or sections which could easily be recognized by exotic control crews. After several queries of the geodatabase were examined, two areas were proposed for release by SFWMD to FFS for continued long-term management. The upper 2 miles of the Prairie canal and the east to west roads from 104th through 116th and east of Patterson SE met the less than individual maximum cover requirements (Figure 20).

The first area proposed is the upper two miles of the Prairie Canal footprint, totaling 46 acres. This was the first area cleared in 2004 with exotic control treatments conducted since 2007, but tracked by IRC since 2008. The rocky mix in the soil did promote many weeds but much of the area flooded in 2008 which likely helped shape the dominant plants (Barry 2009). Also scattered areas with marl substrates, which appear to be less susceptible to invasion by nuisance species, were included especially along the eastern edge of the footprint adjacent to wet prairies. The problem areas are generally south of 66th ave SE on the west side of the footprint near many disturbed areas associated with the demolition sites.

High priority FLEPPC I and II exotics cover has been maintained at low levels through annual treatments and in some years multiple treatments (Tables 4 and 5, Figure 7). Specifically, cogongrass and torpedograss were targeted regularly in these areas scattered throughout. Torpedograss was primarily along the edges of the ponds left in the canal due to lack of sufficient fill. Cover has fluctuated from year to year (Table 9, Figure 10). Thus far despite up to 4 treatments during 2011, some torpedograss has always remained in at least a few of these ponds as treatments are ineffective when the plant is growing in the water. Cogongrass was found scattered in the footprints near the badly infested home sites mostly from 66th south to 79th. Cogongrass will likely continue to recruit in the footprint especially if adjacent home sites and buffers are ever left untreated. Given the area was recently disturbed (Spring 2013) by FFS for use as a firebreak, at a minimum annual treatments will be necessary to keep cover of these two grasses low.

Non listed exotic and nuisance species coverage's were higher in 2008, but later some species cover began to drop keeping total exotics cover combined below 15%. Some of the decline was timed with and perhaps caused by flooding during summer months (Barry 2009). However, budgets for treatments were severely cut and/or delayed until the rainy season in 2011 and 2012. Even partial treatments of non listed species were discontinued, and the wet seasons have been drier than average resulting in much less flooding. Most notably in 2012 we were not able to treat Bermudagrass, generally along the trail/fire break, which at the time seemed as though previous treatments had been ineffective since cover stayed pretty much the same. As a result Bermudagrass did increase in 2013 suggesting that our previous treatments had at least helped control the species. Bermudagrass was treated aggressively this year after missing treatment the year before. *Thalia lovegrass (Eragrostis atrovirens)* had also increased but was not targeted in the past so likely reflects a steady increase rather than the result of a missed treatment. It was systematically treated this fiscal year. Broomweed continues to persist in this area but is not being treated.

The second area proposed for maintenance by FFS will involve annual foliar treatments and less frequent Brazilian pepper retreatments are the east-west roads from 104th through 116th and E of Patterson SE totaling 210 acres (Figure 20). This includes a lot of marl soils which seem to have far less exotics cover in general. The surrounding areas have been maintained by a fairly regular prescribed burning schedule since the late 1990's. This has likely helped maintain surrounding areas with more native cover and less Brazilian pepper. Only a few camps were removed in the area, so in general demolition sites are not a problematic source of re-infestation from other exotic species.

Total exotics cover was maintained below 10% until this past year when it rose to 13% (Tables 6 and 7, Figure 8). Most of these roads in the footprints, near treatment buffers, have been maintained free of torpedograss, and cogongrass is found only in the footprints in the buffer along the edge of the footprint (Table 10, Figure 11). A few widely scattered melaleuca seedlings (now treated) did pop up in a few areas resulting in an increase in acreage mapped as less than 1%. Brazilian pepper and lantana are however, the only FLEPPC I species to increase substantially over the past year and clearly show an increasing trend (Table 10, Figure 11). Although individual species cover still

remains less than 1%, it is important to note that cover has rebounded to similar levels as 2009 when the last basal bark treatment using Garlon IV was completed. These areas will require treatments within a year or two to maintain this low level. Lantana was treated by foliar application while treating exotic grasses but should be more systematically treated when re-treatment with Garlon IV occurs. FLEPPC II species have changed little and combined cover has been maintained just above 1% and individual species cover below 1%.

Non listed species have fluctuated since 2008, but continued to increase over the past couple of years to levels higher than 2008 (Tables 6 and 7, Figure 8). The greatest increase observed was broomweed with an estimated cover in 2013 of 2.3%. Smutgrass was also higher than in 2008 but had been higher in 2012 and 2010 (Table 10, Figure 11). Smutgrass was sporadically treated in these areas and broomweed has not been treated. Both species have been affected by high water events, so it is hoped that with the wet season we just experienced in 2013 there will be a reduction in cover for both of these species.

Vaseygrass, on the other hand, which is not expected to decrease much in wet years, has been regularly targeted over the years until budget cuts in 2011 and 2012. It should be noted that it rapidly responded to two years without systematic treatments with 2013 levels rising to the highest cover observed since 2008. It was targeted systematically in 2013 following the collection of cover data presented in these charts, however this species will most likely increase again if FFS does not treat it this year. Thalia lovegrass has also increased, and will not be reduced by flooding; however this species has not been targeted in the past. It was treated systematically in 2013 and should be re-treated and monitored more closely in the future.

3.5 SUMMARY OF TREATMENT COSTS

A summary table of treatments completed with fiscal year 2013 funds by both SFWMD and ACOE is presented in Table 16. A total of \$ 425,000 was spent on exotic control primarily in the footprints and demolition sites of the Prairie canal and Merritt phases. Approximately \$264,585 was spent by SFWMD while \$110,011 was spent by ACOE. Of this total, an additional \$50,000 was also spent by Florida Fish and Wildlife Conservation Commission (FWC) to retreat *Melaleuca* over a wider area of PSRP. Although SFWMD spent more than ACOE this fiscal year, this was more a result of lack of availability of crews by their contractor until later in the year when rains prevented the scheduled initial treatments in the Faka Union phase. This has now pushed us behind schedule in these recently cleared areas. SFWMD funds were insufficient to retreat Brazilian pepper in the Prairie Canal phase or to continue initial treatments at the demolition sites within Merritt phase putting us behind schedule in these areas.

3.6 RECCOMENDATIONS

SFWMD budgets during fiscal years 2011 and 2012 left re-treatments in the Prairie canal Phase behind schedule, especially for Brazilian pepper in the cleared footprints. The data

presented above shows the resulting increase in exotics cover. Additionally, very little headway has been made in completing initial treatments at demolition sites within the Merritt phase.

ACOE budgets have been more stable. Treatments were successful in the Merritt Canal phase footprints in fiscal years 2012 and 2013. However, due to indirect effects of a tragic accident (not at PSRP) with the exotic control contractor, which resulted in some downsizing to insure higher safety standards, fewer crews were available during the dry season of 2013 when we hoped to begin treating some of the cleared footprints in the Faka Union canal phase. When a crew was finally available, it was ultimately the rainy weather which prevented the work from being completed. As a result, we will need to catch up in Faka Union phase.

Melaleuca treatments are not put into the priorities listed below because it is a priority for the entire PSRP area, not just the footprints and demolition sites discussed below. IRC anticipates assisting with the allocation of funds from FWC to treat *Melaleuca* along the western edge of the project area along the portion of the Belle Meade tract which is home to the majority of the remaining red-cockaded woodpeckers (*Picoides borealis*) in Picayune Strand State Forest.

Given that some treatments are behind schedule, and that fiscal year 2014 budgets from both agencies will most likely not be sufficient to complete all tasks, it is understood that some items listed below may not be completed. The below treatments are prioritized in the order that we believe would accomplish the most this fiscal year. But creativity and flexibility are key when dealing with changing weather, crew availability, and budgets.

1. Complete re-treatments this fall (*just completed*) of jaraguá (*Hyparrhenia rufa*) in cleared footprints of Prairie and Merritt Canal phases (ACOE).
2. Conduct some foliar treatments using swamp buggy of the Faka Union canal phase cleared footprints, targeting only higher priority species such as cogongrass (ACOE). Due to budget and crew availability prior to March 2014, at which time changes will be made by ACOE, crews may only be able to target footprints (not adjacent buffers). Crews should work from the north end of Everglades (where crews already began for a short time this summer before being shut down by rain) working southward. IRC recommends working until just enough budget remains for the current contractor to move to Merritt phase for re-treatment (see below #3).
3. Conduct foliar re-treatment using swamp buggy of the Merritt Phase footprints (ACOE). IRC recommends completing this task with current budgets to insure that the same contractor which conducted the initial treatments last year can be utilized. This task is of equal importance to item 2 listed above.
4. Conduct foliar re-treatment of all Prairie canal phase cleared footprints (except areas turned over to FFS for maintenance) using swamp buggy or similar vehicle

(SFWMD). These treatments can be conducted any time this fiscal year, except if a freeze or fire occurs, prior to rainy season.

5. Re-treat (foliar) at least high priority species using a swamp buggy (or similar vehicle) the Soil remediation sites and associated demolition sites in the Miller phase (SFWMD).
6. Re-treat Brazilian pepper, lantana and miscellaneous hardwoods using Garlon IV within Prairie canal phase footprints (SFWMD). If there are not enough funds to complete this task, IRC recommends considering re treatment of only the road footprints where cover exceeds 5% in at least some of the area. This is a high priority item as discussed above in section 3.3. This can be completed during the dry season.
7. Foliar Re-treatment of Prairie and Merritt Canal phase demolition sites and their buffers (SFWMD). The best option is to utilize backpack sprayers and conduct a thorough re-treatment. The other option is to utilize a swamp buggy and selectively treat sites as was completed in FY 2013.
8. Foliar treatment of Prairie Canal logging trams (ACOE). These were incomplete last fiscal year but levels of infestation were low, except for caesarweed. Budgets and cover (heavy rains may have reduced cover) will dictate whether caesarweed is targeted this fiscal year.
9. Foliar treatment of L-6 footprint (ACOE). This recently cleared footprint for a new levee to be constructed in the Belle Meade tract should be treated, at a minimum, once, for high priority grasses such as torpedograss and cogongrass. This is somewhat elevated in priority partly because it should not cost too much.
10. Initial treatments of Brazilian pepper in Prairie Canal phase logging trams (ACOE). Ideally, because the footprints are narrow, it would be good to treat a buffer distance around all the tram footprints surrounded by upland or transitional areas not likely to be flooded for long periods of time. At a minimum, treatments should include the cleared footprints where cover already exceeds 5%.
11. Re-treat Brazilian pepper, lantana and miscellaneous hardwoods using Garlon IV within Prairie and Merritt canal phase demolition sites and their buffers (SFWMD). This is a costly venture and perhaps with current budget only a portion will be possible, if any. In that case, IRC recommends only re-treating the original roughly 500 acres of the Merritt phase demolition sites that were treated in 2010 due to re-emergence of lead tree in those areas observed in 2013.
12. Continue initial foliar treatments at demolition sites and their buffers in the Merritt Phase. This could include the use of a swamp buggy for larger (1-5 acre) patches of cogongrass but will require backpack crews for most of the over 4,000 acres remaining. Budgets are unlikely to be sufficient to treat the whole area this

fiscal year, and areas have already been prioritized within the unblocked areas of the Merritt phase for immediate treatments.

13. Following foliar treatments at demolition sites and their buffers in the Merritt Phase, Brazilian pepper and hardwoods will require treatment. Again this includes over 4,000 acres of hand treatments and would be prioritized according to completed foliar treatments. This should not be done prior to foliar treatments because the increased light may promote expansion of exotic grasses if left untreated.

4.0 ACKNOWLEDGEMENTS

We wish to thank Mike Duever for new chart and table formats and motivation to analyze and present the data in new ways, especially knowing he will look at it and use it. Thanks to Jon Morton and Ellen Allen for all their help and feedback in prioritizing treatments with limited budgets and crew schedules. Thanks to Craig van der Heiden for edits. Thanks to Beth McCartney for additional supervised classifications of aerial photography to identify cogongrass in unblocked areas of Merritt phase.

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Figures

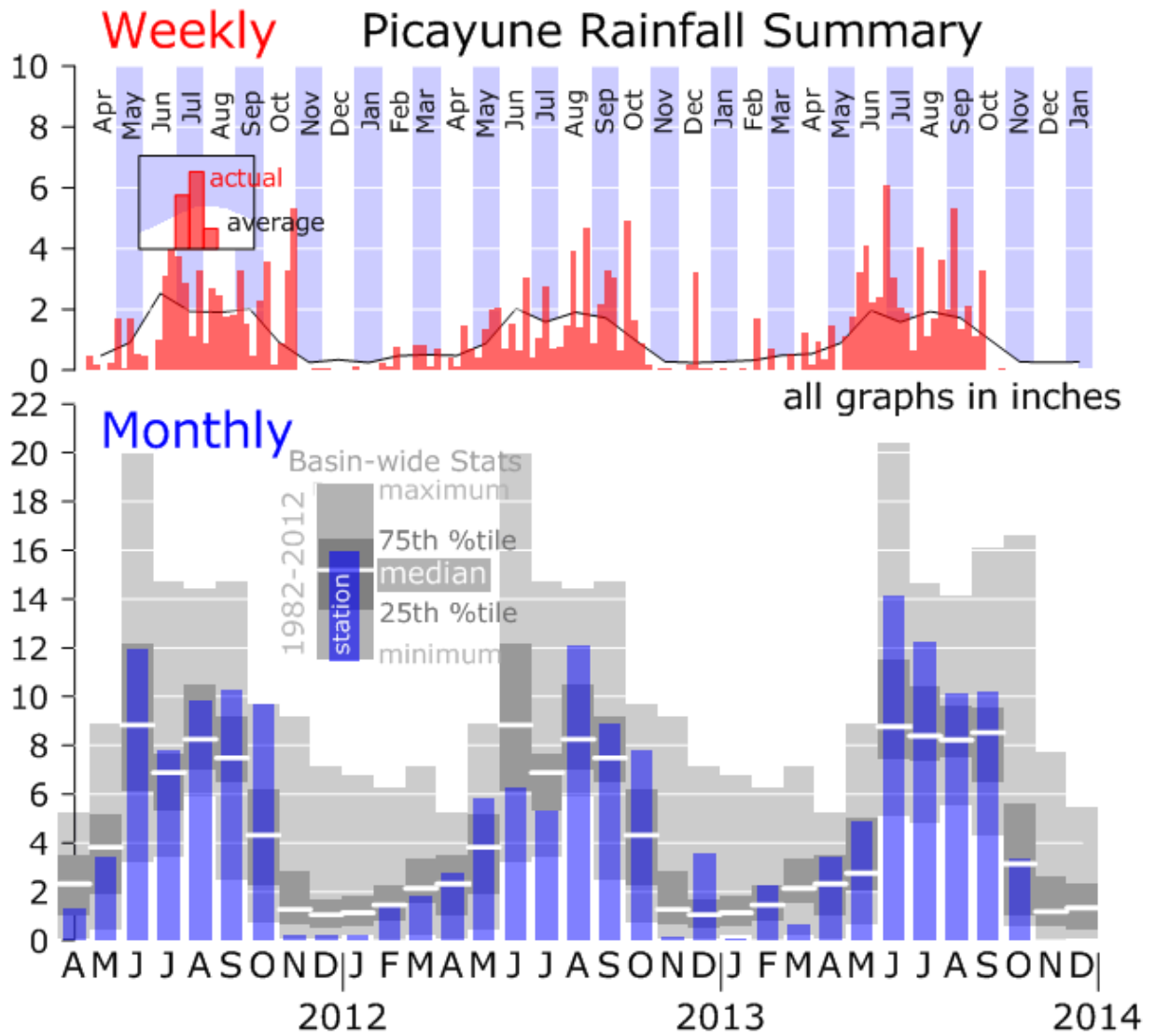


Figure 1: Picayune Rainfall Summary (gohydrology.org)

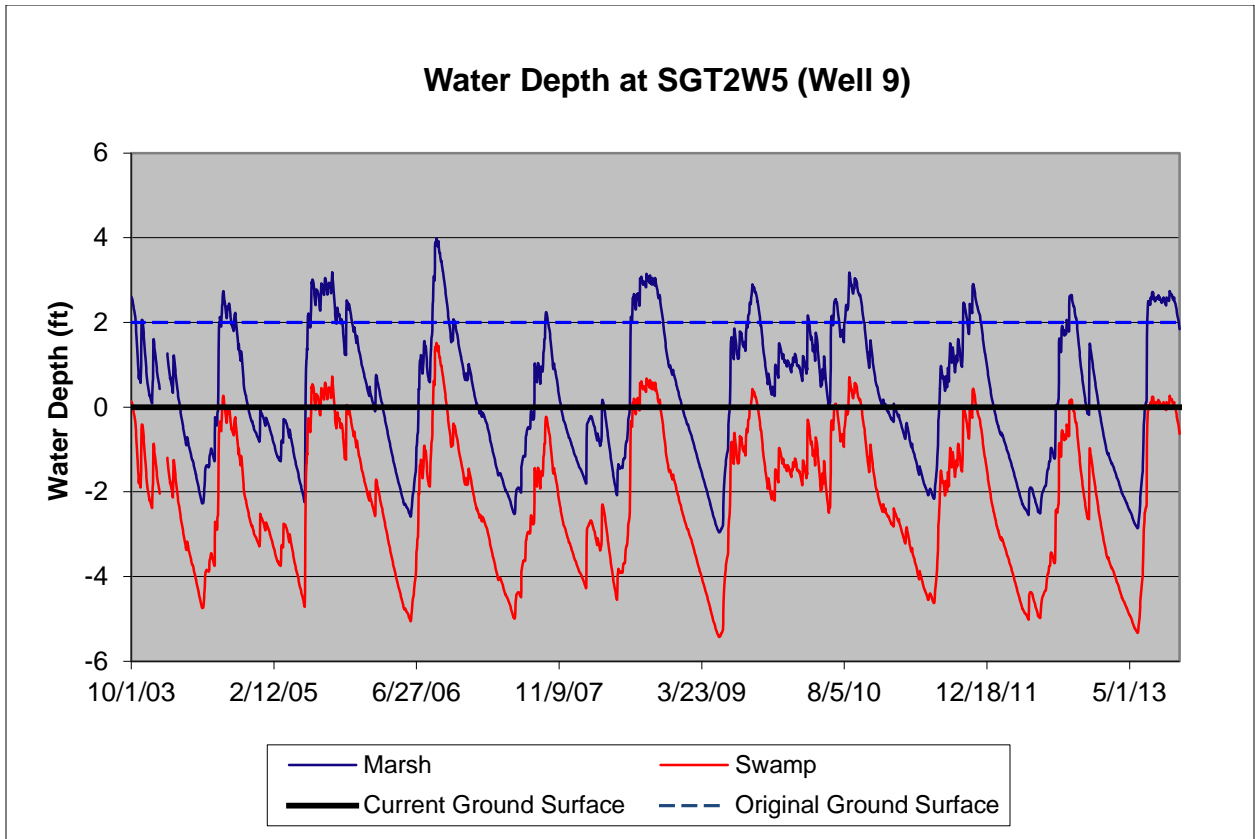


Figure 2: Water Depth at SGT2W5 (Well 9)

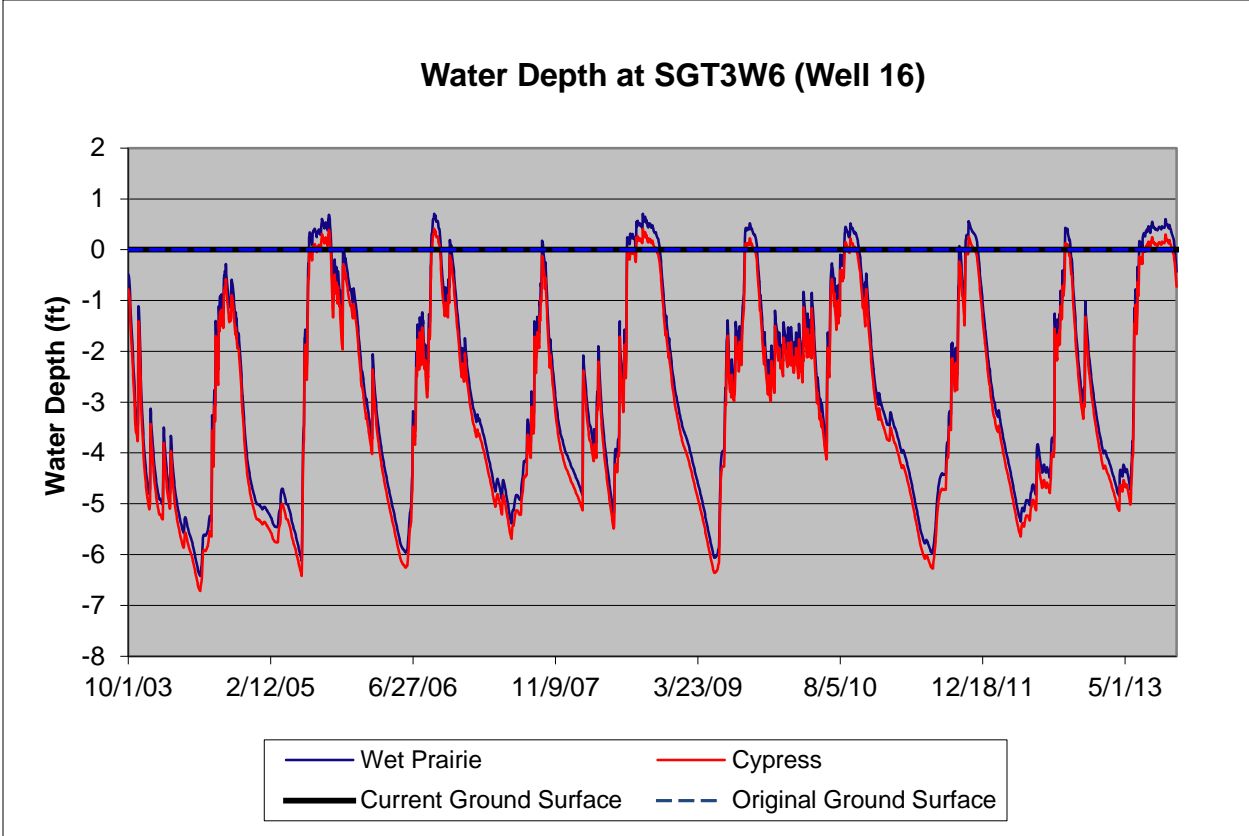


Figure 3: Water Depth at SGT3W6 (Well 16)

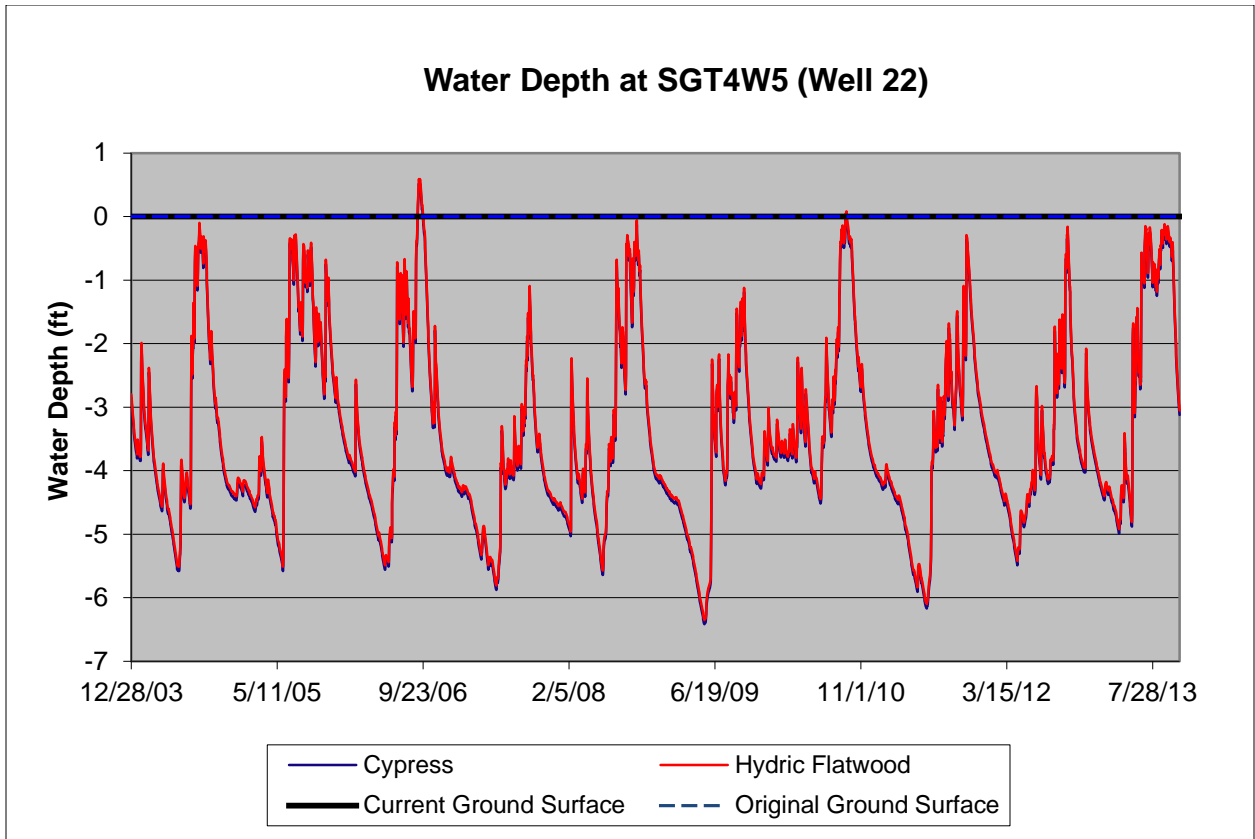


Figure 4: Water Depth at SGT4W5 (Well 22)



Figure 5: Area Covered by Foliar Re-Treatment (ACOE) of Priority Species in Prairie Canal Phase at PSRP, FY 2013

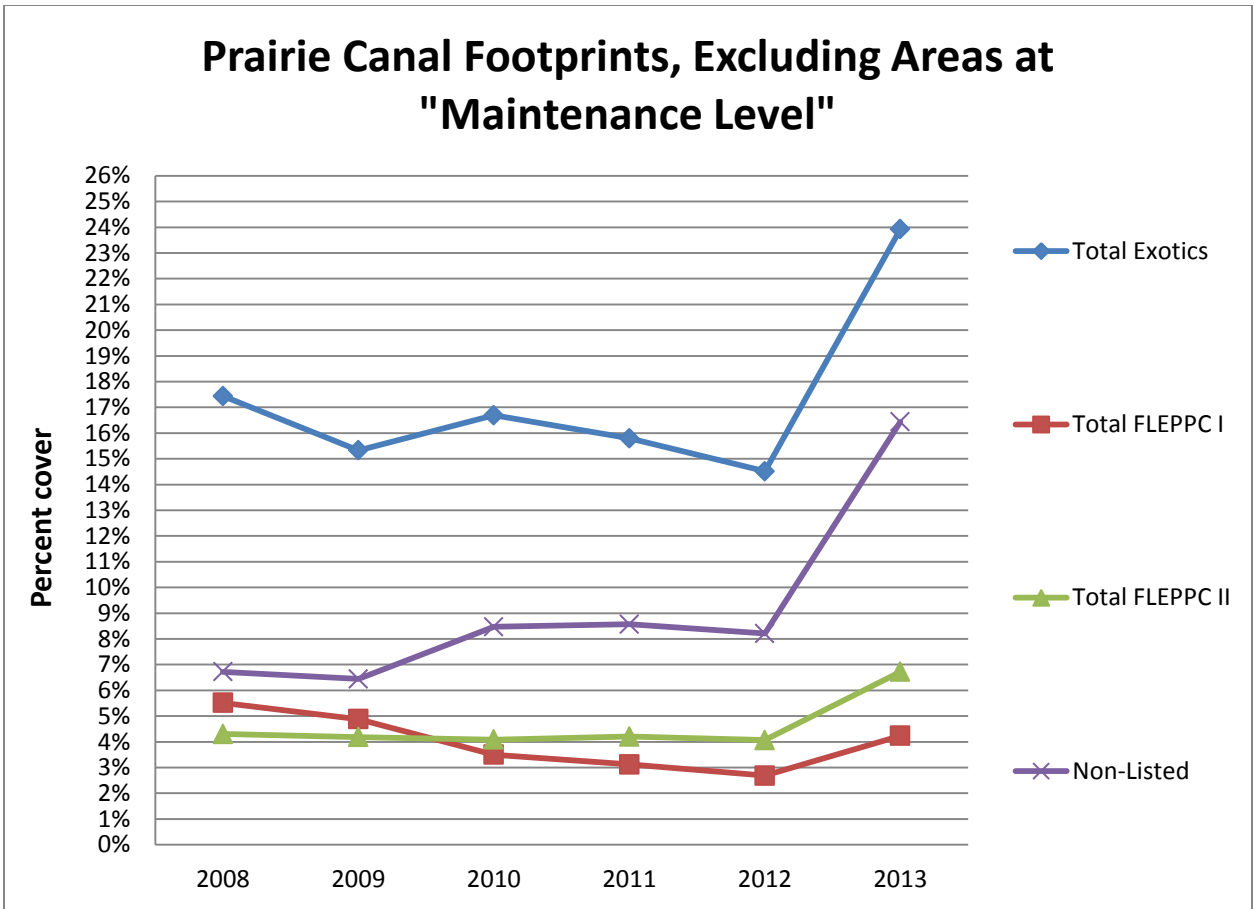


Figure 6: Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (Excluding Areas at "Maintenance Level")

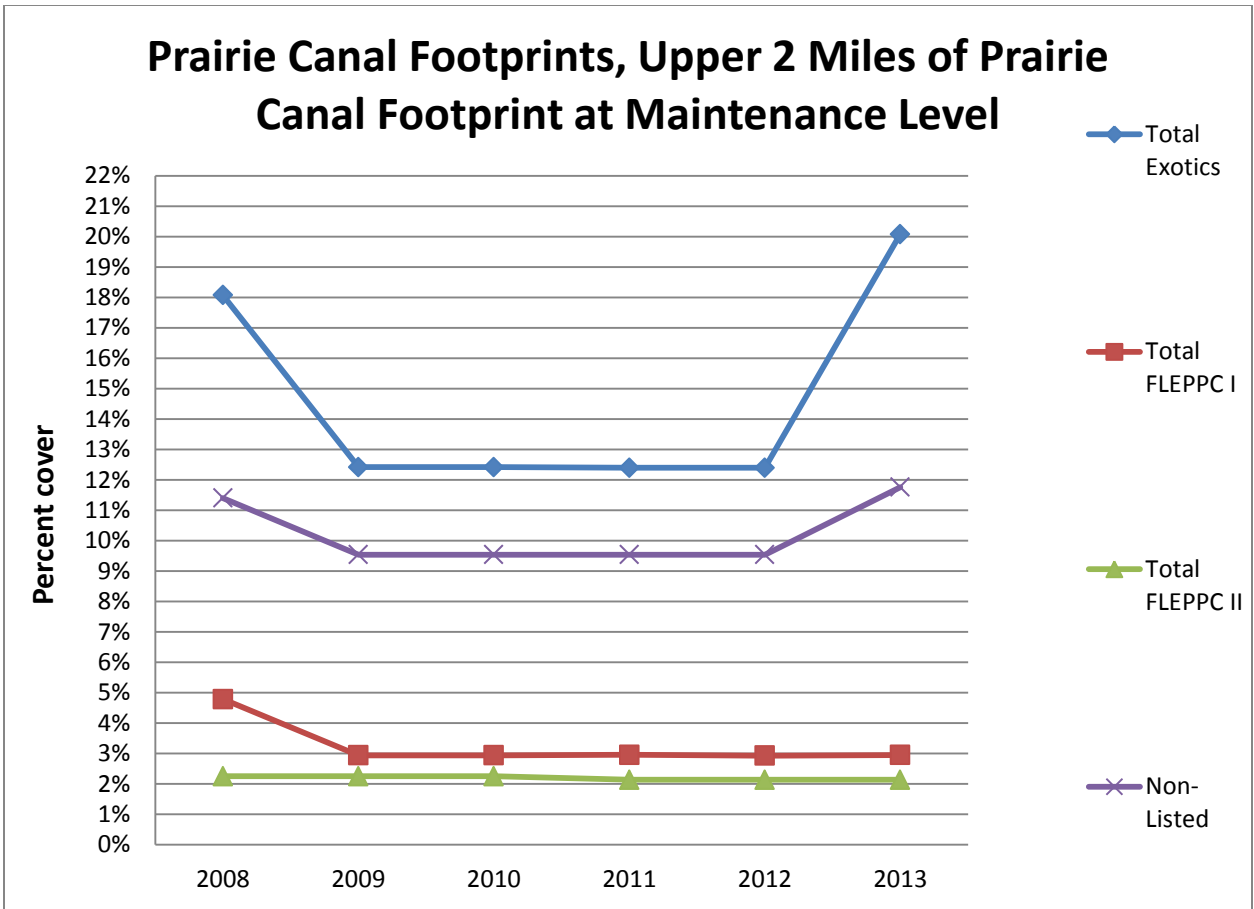


Figure 7: Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (Upper 2 Miles of Prairie Canal)

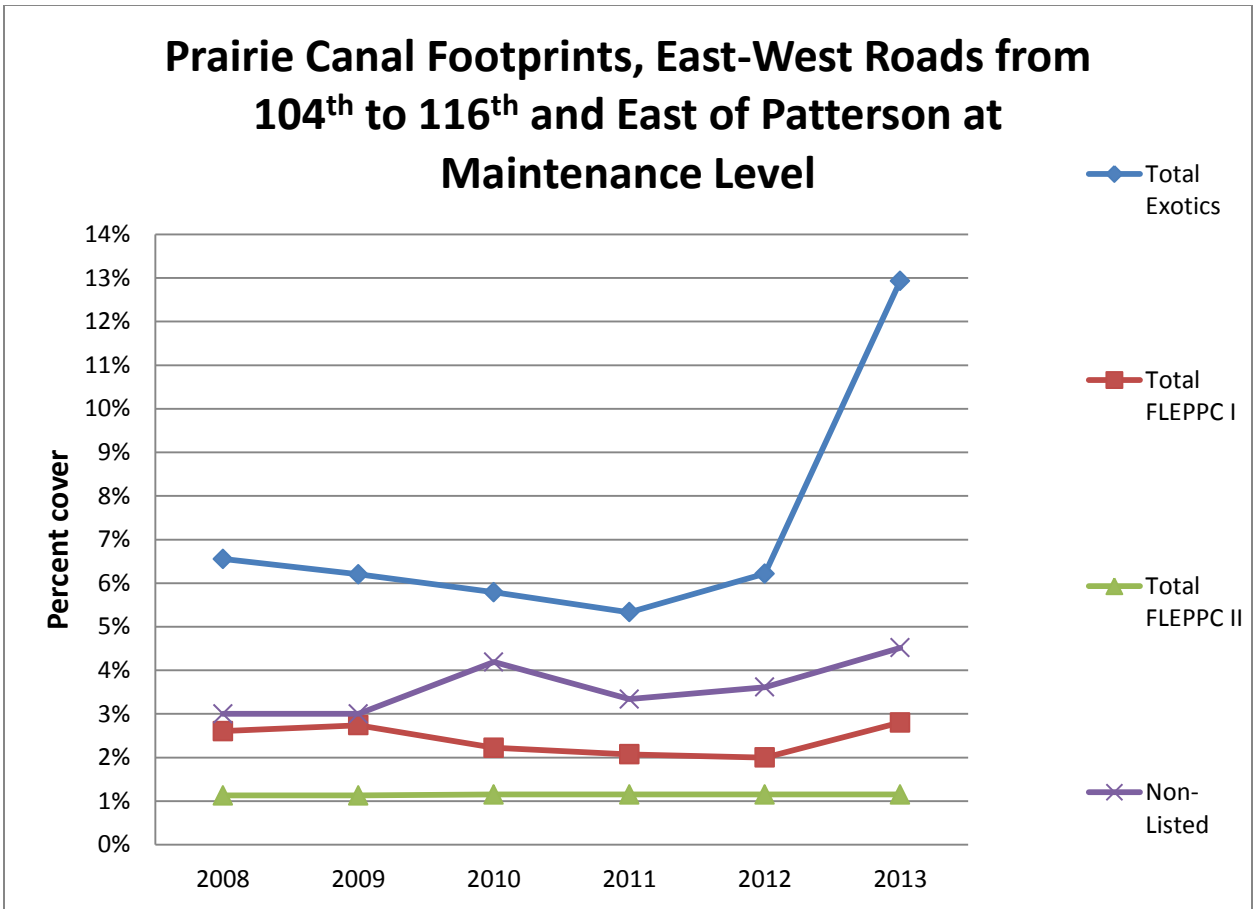


Figure 8: Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (E-W roads from 104th through 116th and E of Patterson)

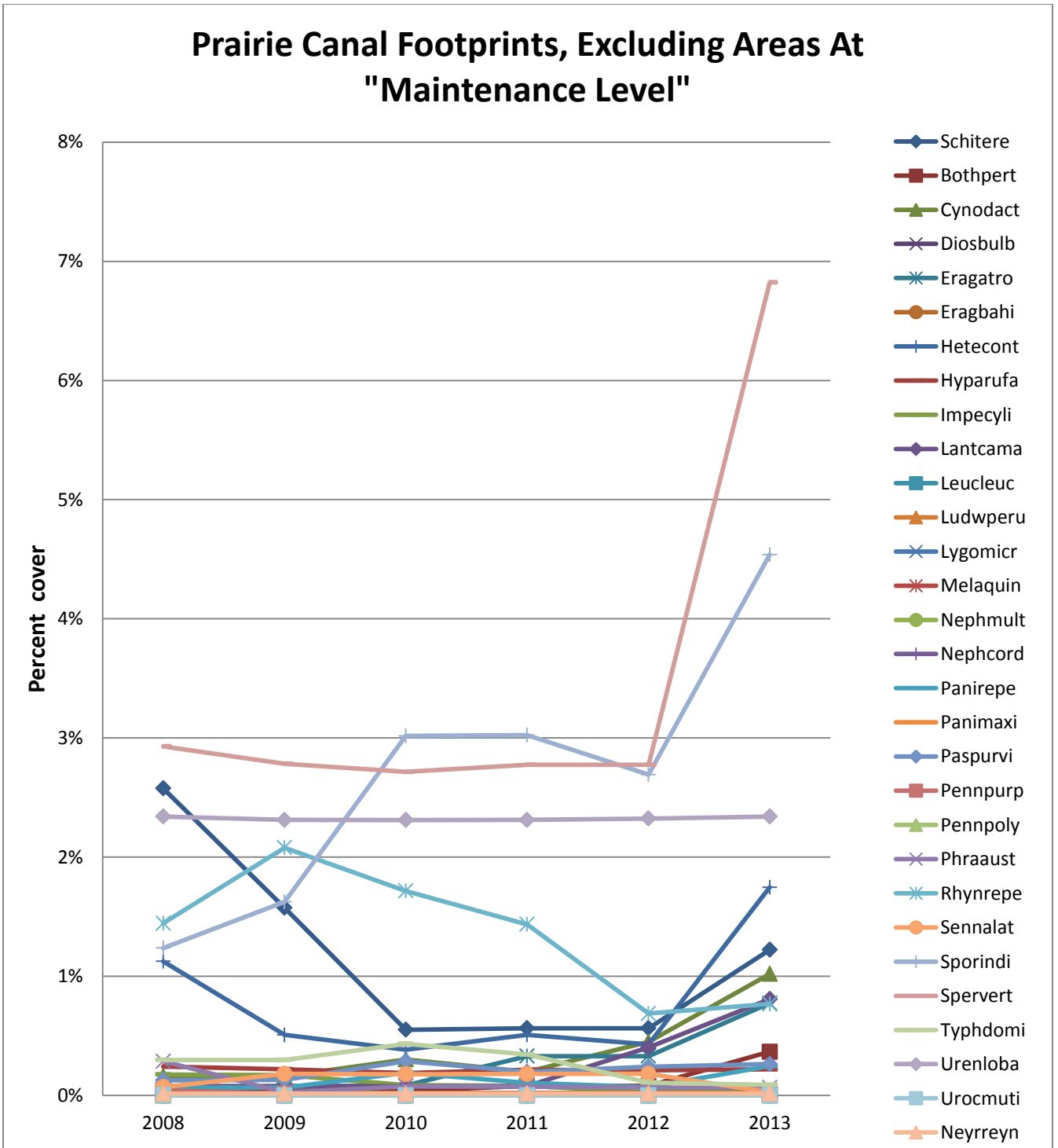


Figure 9: Individual Species Cover, Prairie Canal Footprints, Excluding Areas at "Maintenance Level"

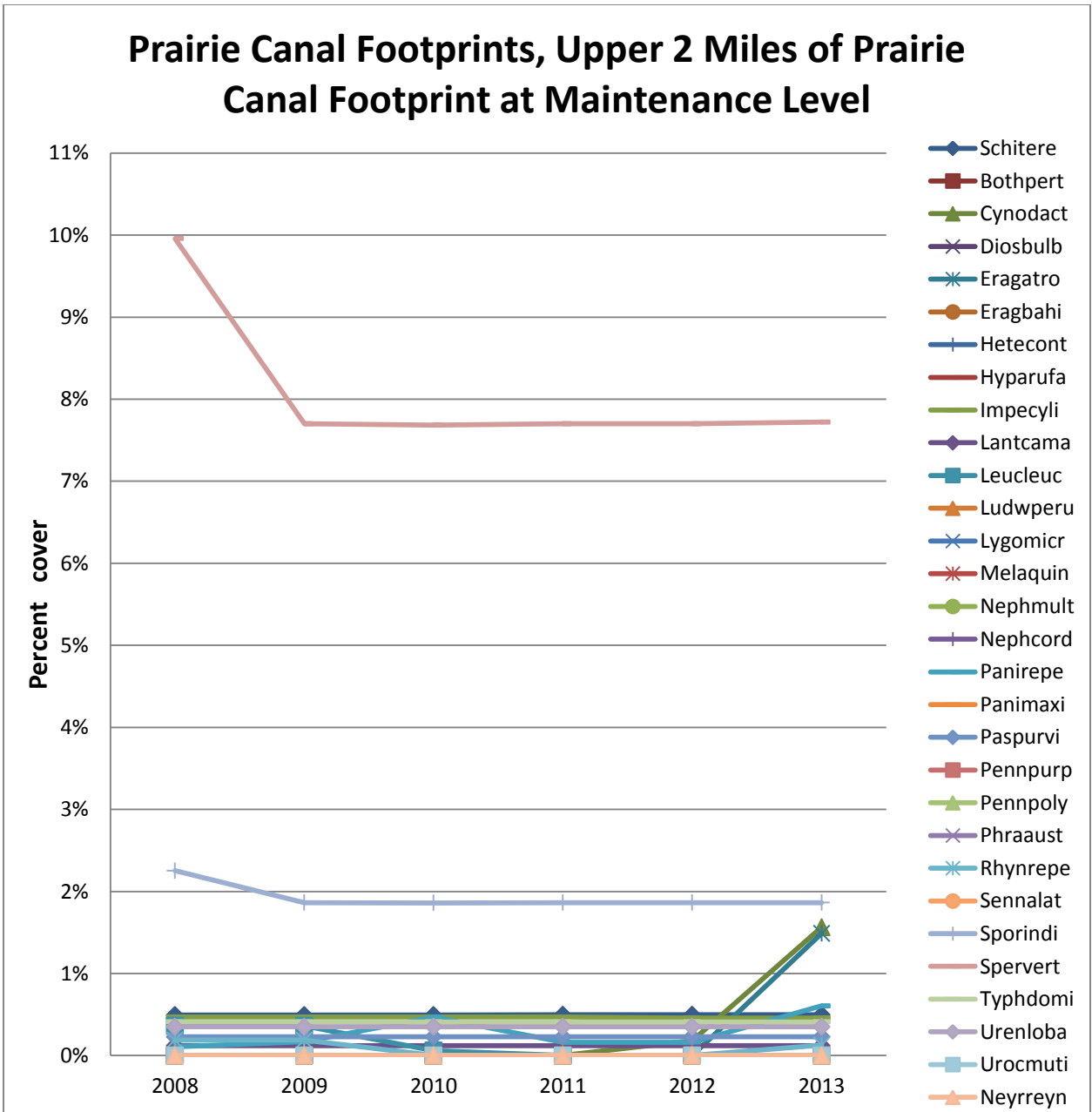


Figure 10: Individual Species Cover, Prairie Canal Phase Cleared Footprints (Upper 2 Miles of Prairie Canal)

Prairie Canal Footprints, East-West Roads from 104th to 116th and East of Patterson at Maintenance Level

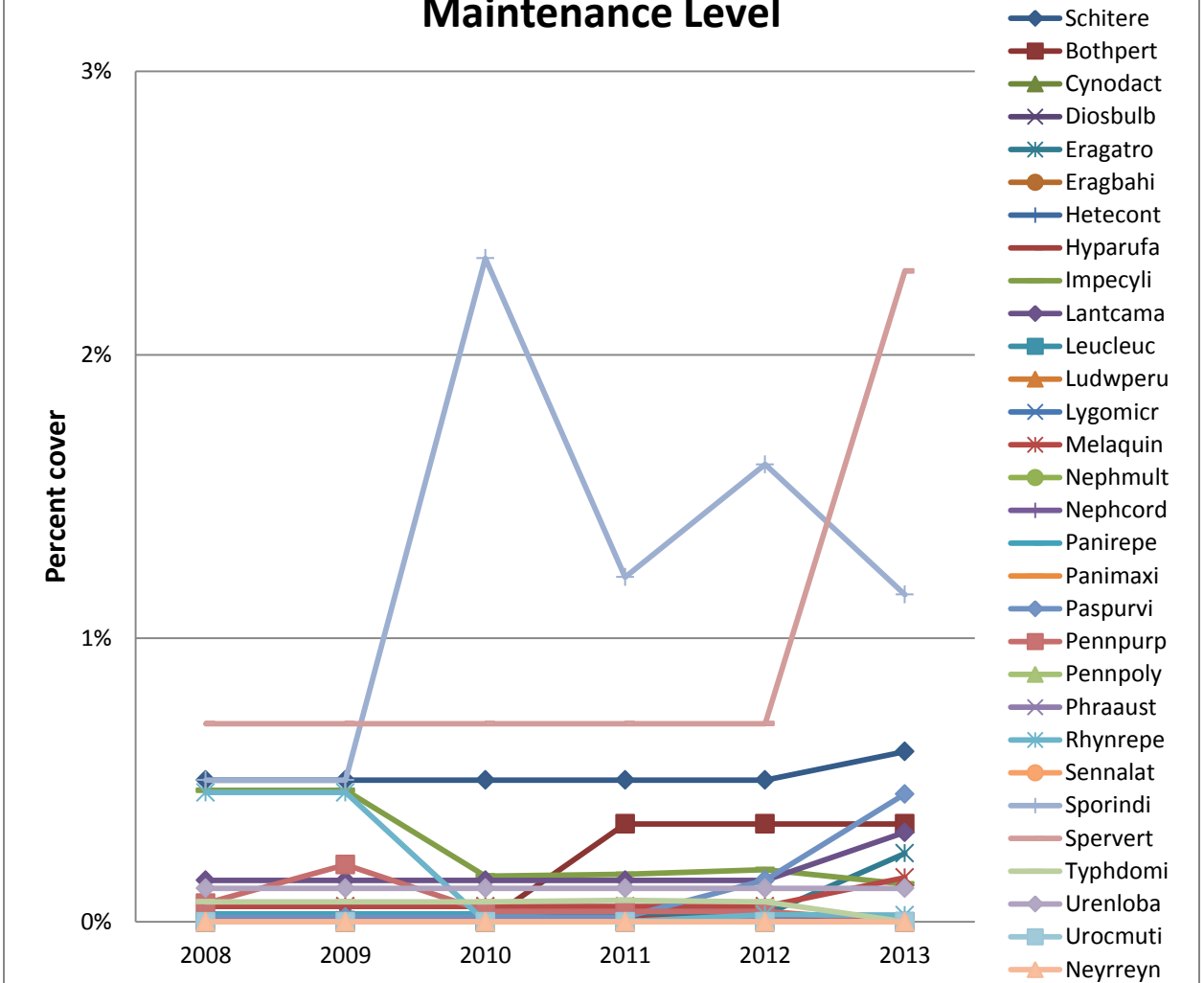


Figure 11: Individual Species Cover, Prairie Canal Phase Cleared Footprints (E-W roads from 104th through 116th and E of Patterson)

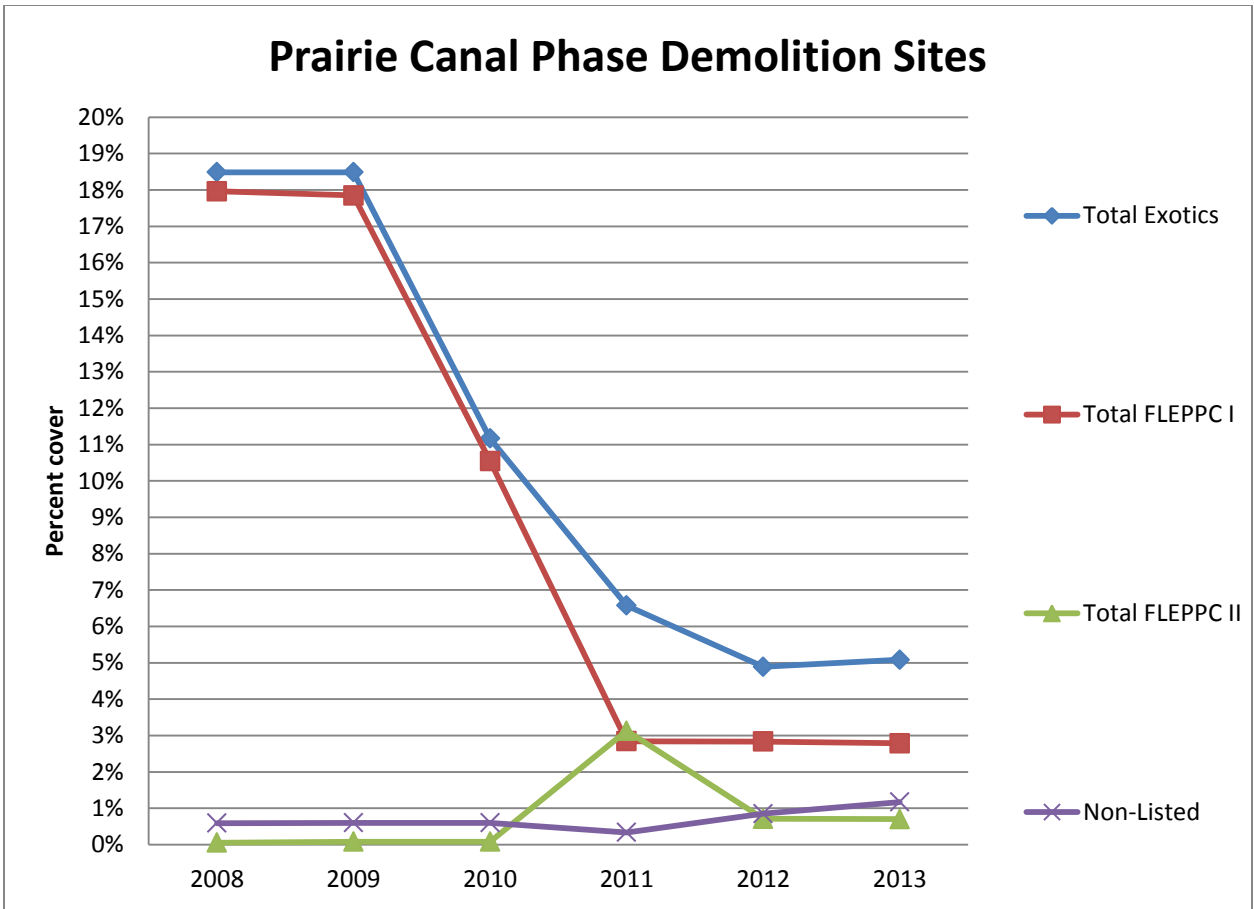


Figure 12: Area Covered by Invasive Exotics in Prairie Canal Phase Demolition Sites

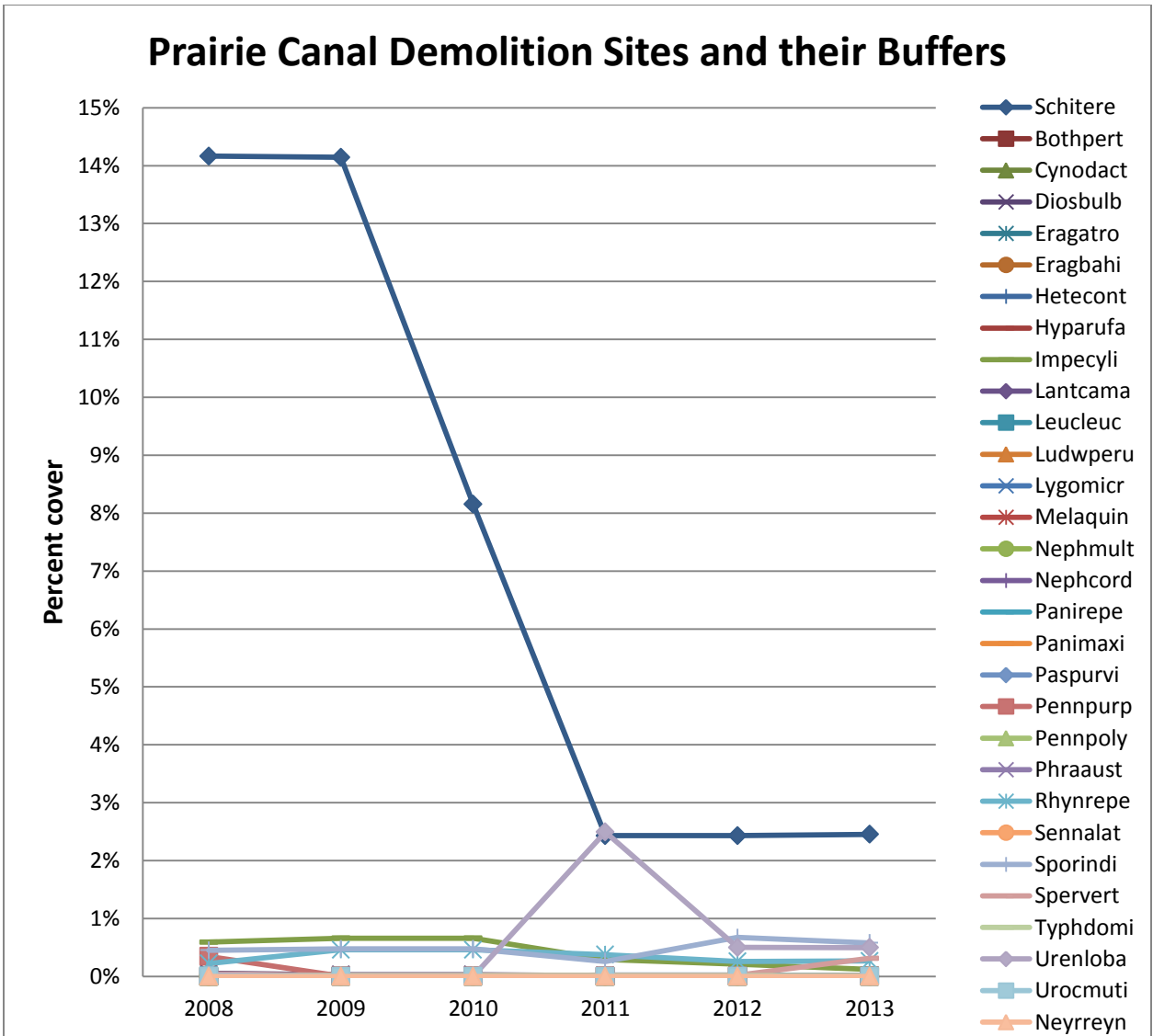


Figure 13: Individual Species Cover, Prairie Canal Phase Demolition Sites

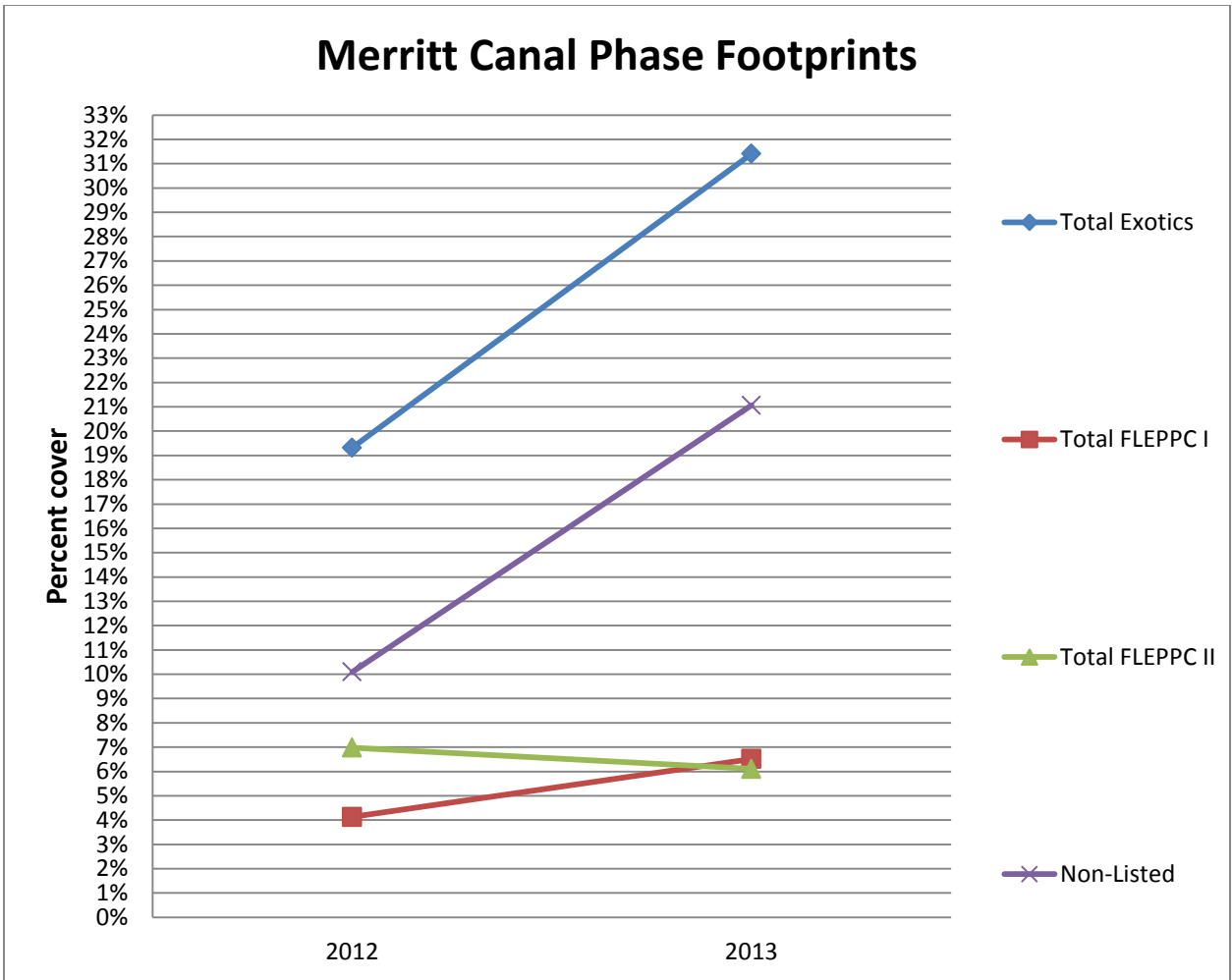


Figure 14: Area Covered by Invasive Exotics in Merritt Canal Phase Cleared Footprints

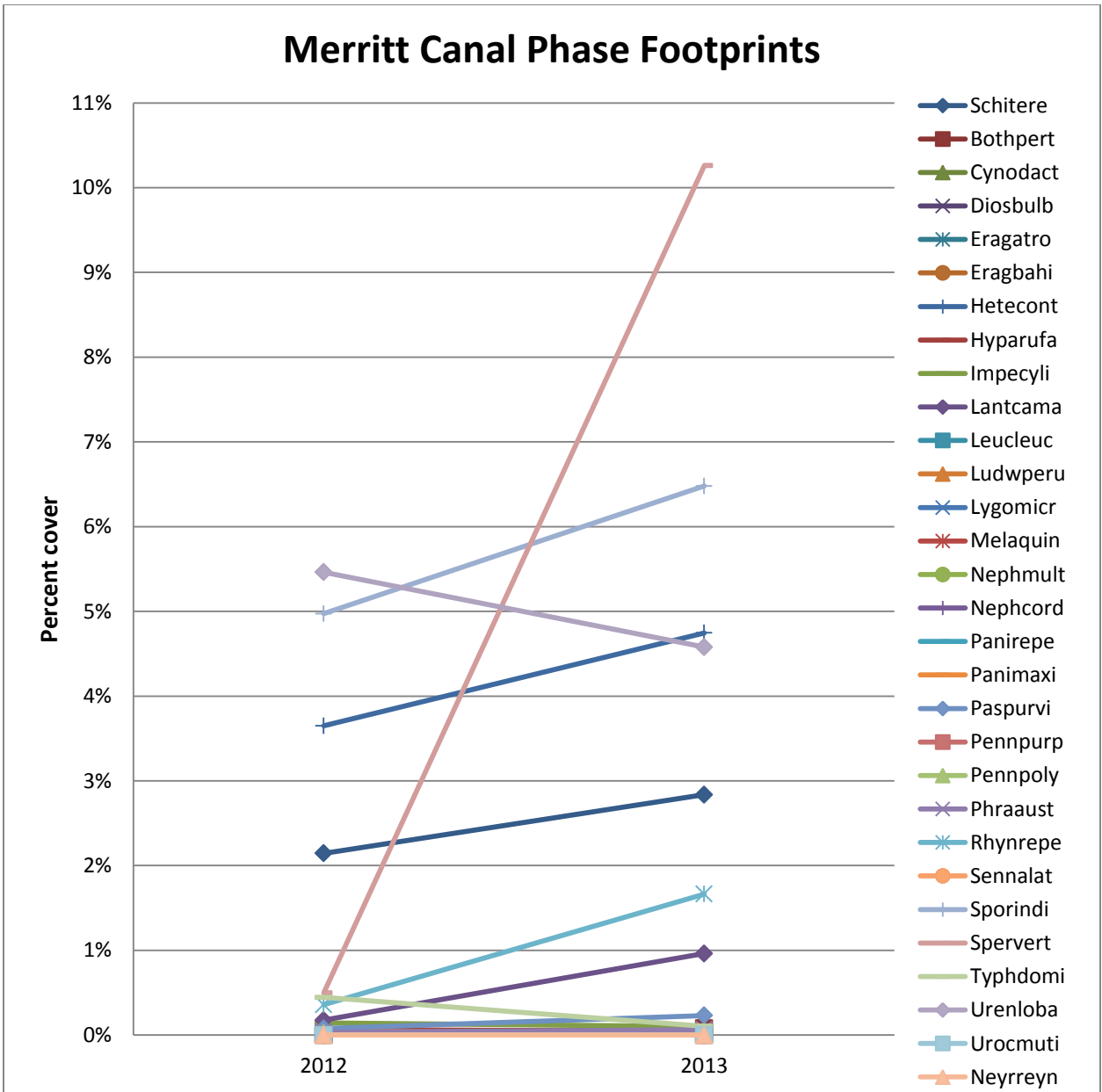


Figure 15: Individual Species Cover, Merritt Canal PhaseFootprints

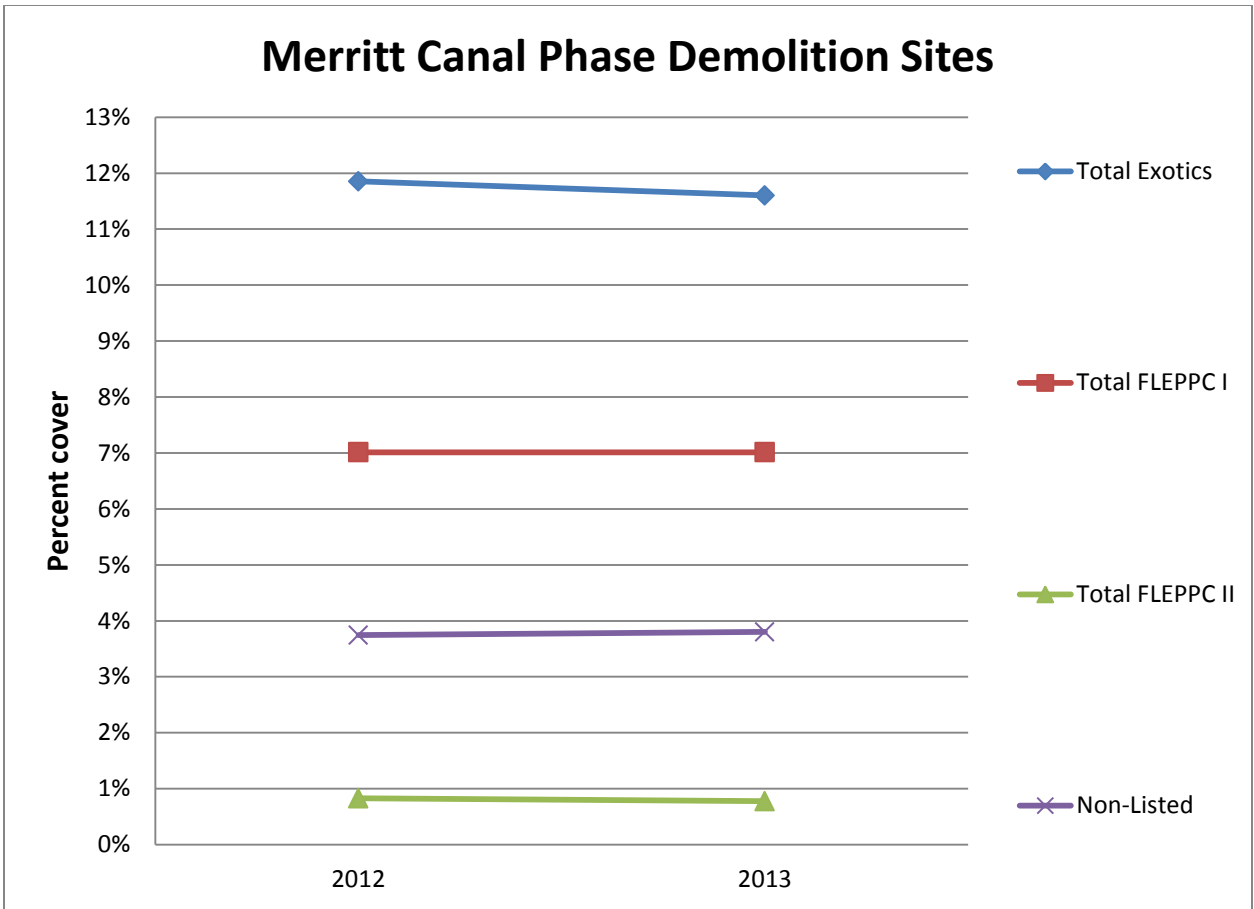


Figure 16: Area Covered by Invasive Exotics in Merritt Canal Phase Demolition Sites

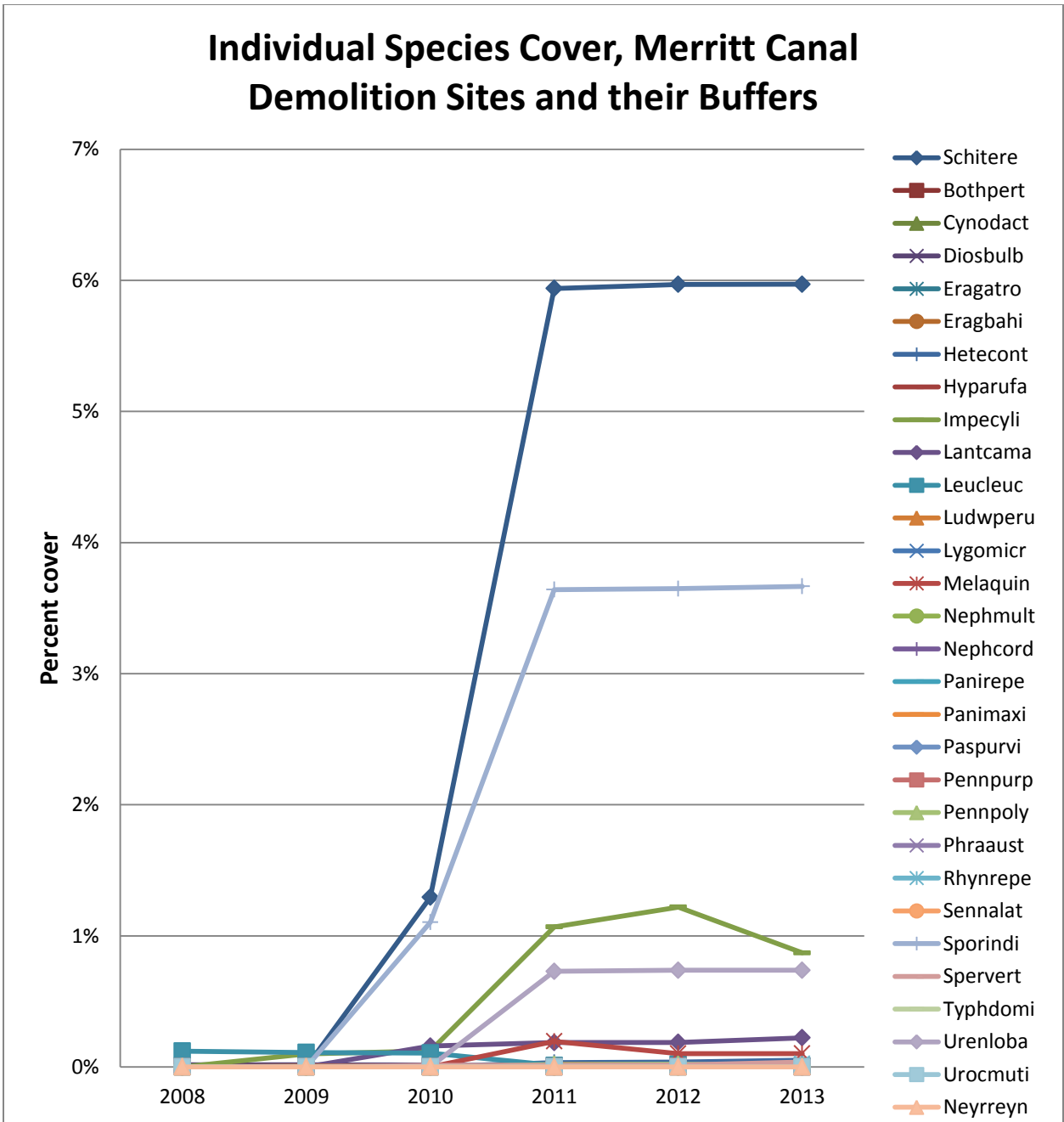


Figure 17: Individual Species Cover, Merritt Canal Phase Demolition Sites

(mapping still incomplete, but very little complete prior to 2011, thus the low values, except for leucleuc at the first home sites treated in Merritt Canal Phase, 2010)

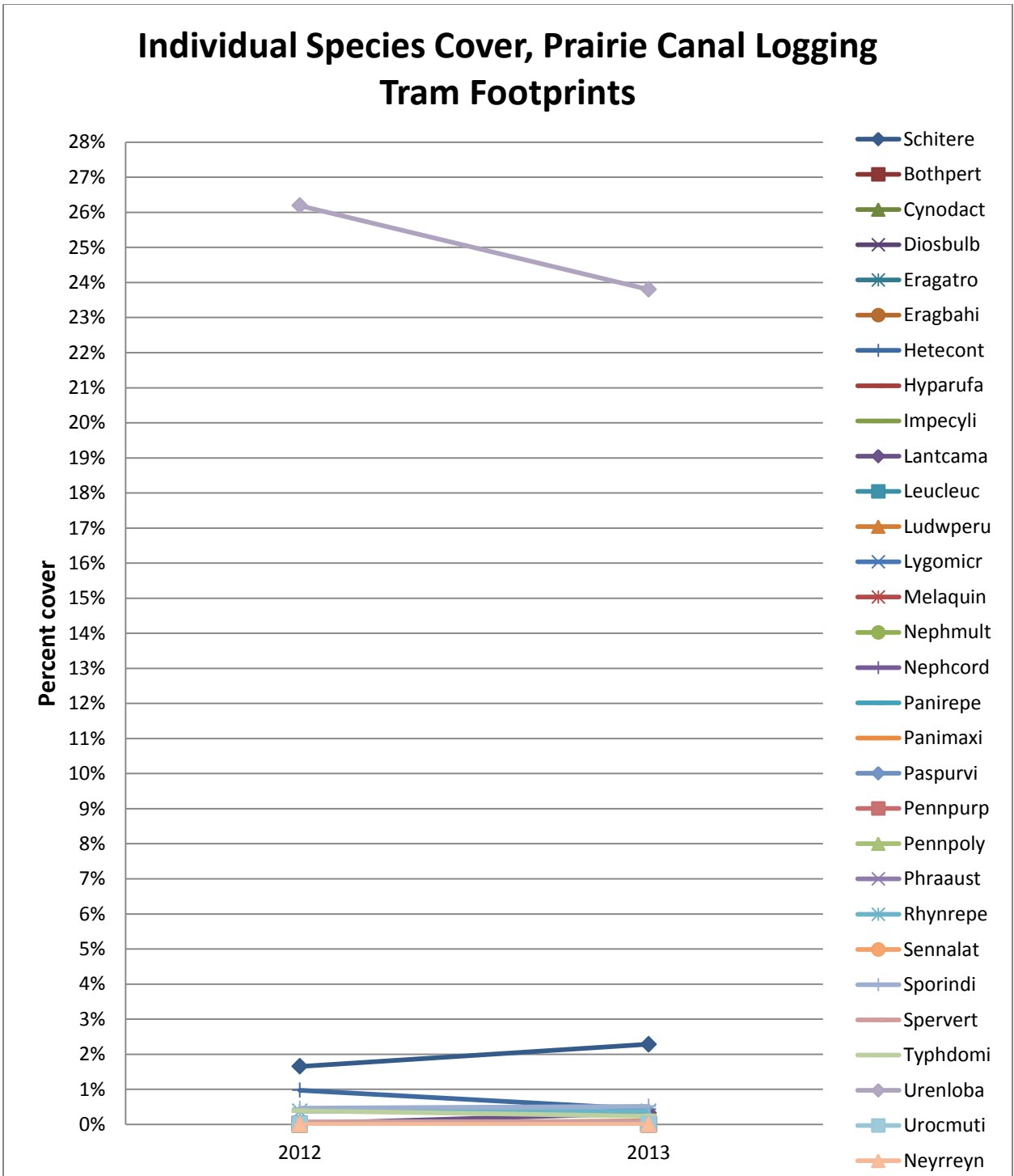


Figure 18: Individual Species Cover, Prairie Canal Phase Logging Tram Footprints

Individual Species Cover, Merritt Canal Logging Tram Footprints

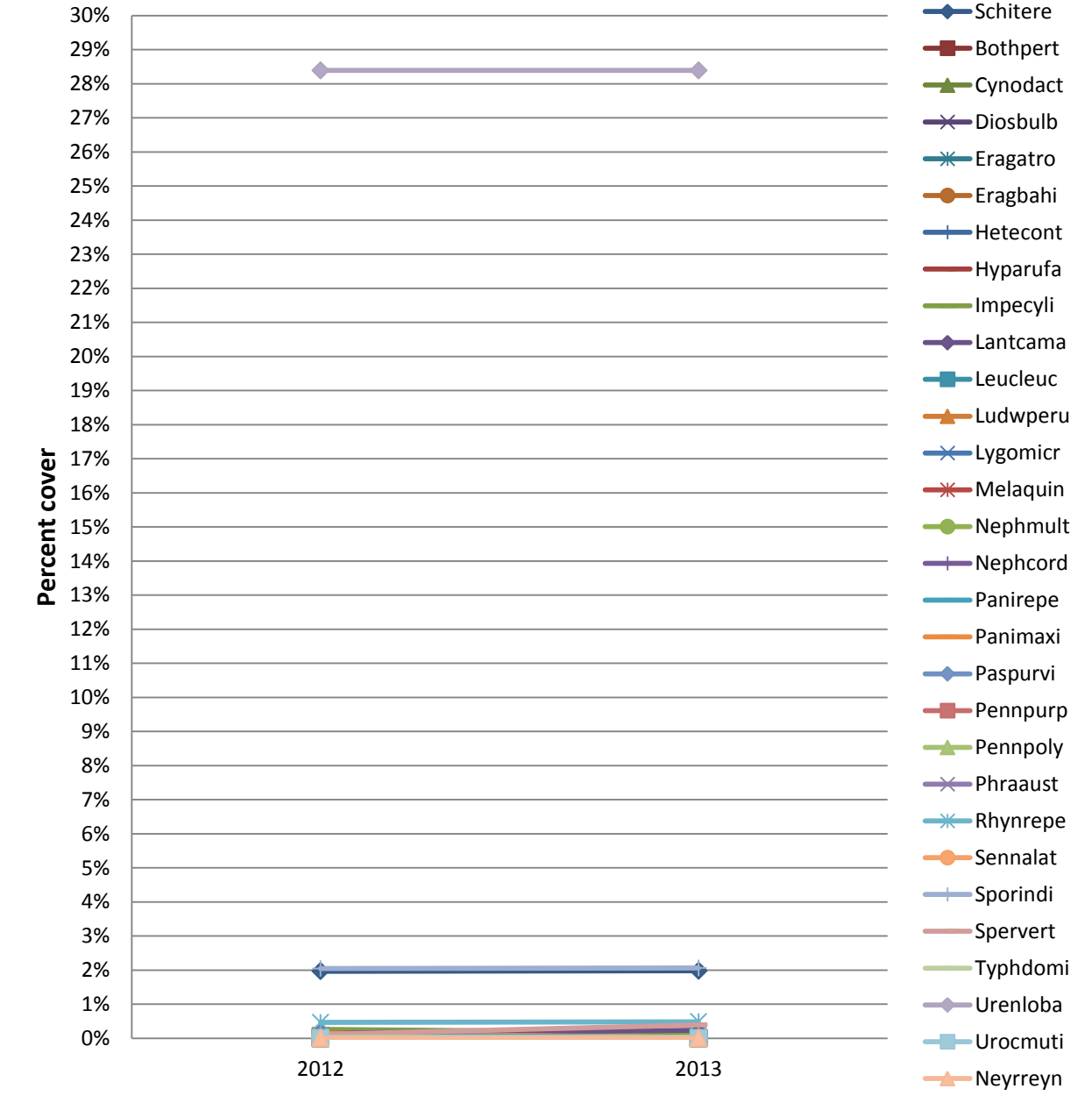


Figure 19: Individual Species Cover, Merritt Canal Phase Logging Tram Footprints



Figure 20: Areas at “Maintenance Level”, Prairie Canal Phase Footprints

Tables

Table 1: Acres Covered by Foliar Re-Treatment (ACOE) of Priority Species* in Prairie Canal Phase at PSRP, FY 2013											
Treatment	Dates	Location	0	0-<1%	1-5%	5-25%	25-50%	50-75%	75-95%	>95%	Total Acres
Prairie Canal Footprints Re-Treatment (ACOE)	6/17/2013 to 7/11/2013	Inside Footprint	0.7	8.3	43.6	34.9					87.4
		Adjacent to Footprint	4.4	1.1	3.7						9.1
		Inside Logging Tram Footprint	8.7	6.3	6.8	3.4					25.2
		Demolition Site			2.0						
		Demolition Site Buffer	17.2	3.5	1.3						22.0
		New Footprint	113.8	5.4							119.2
TOTAL:			144.7	24.6	57.4	38.3	0.0	0.0	0.0	0.0	264.9
<p>* Species Targeted in FY 2013 included in these cover estimates are: <i>Cynodact</i>, <i>Eragatro</i>, <i>Impecyli</i>, <i>Lantcama</i>, <i>Panirepe</i>, <i>Neyrreyn</i>, <i>Panimaxi</i>, <i>Paspurvi</i>, <i>Penepurp</i>, <i>Pennpoly</i>, <i>Phraaust</i>, <i>Melirepe</i>, <i>Typhdomi</i>, and <i>Urocmuti</i></p>											

Table 2: Total Infested Acres by Cover Class and Actual Area Covered by Invasive Exotics in Prairie Canal Cleared Footprints (Excluding Areas At "Maintenance Level")

Category	Period	0% (No Infestation)	Total Infested Acres	Actual Coverage*	<1%	1-5%	5-25%	25-50%	50-75%	75-95%	95-100%	Total Acres**
Total Exotics	Spring 2008	0.5	1465.0	255.5	9.6	371.7	821.3	187.4	61.0	7.9	6.1	1465.5
	Spring 2009	0.5	1465.0	224.6	13.3	594.3	616.3	167.2	53.7	14.1	6.1	1465.5
	Spring 2010	0.5	1465.0	244.6	11.6	429.4	779.0	170.7	58.6	9.2	6.5	1465.5
	Spring 2011	0.5	1465.0	231.4	5.9	487.0	753.3	146.1	56.9	15.8		1465.5
	Spring 2012	0.5	1465.0	212.7	12.1	487.6	811.1	92.9	51.1	3.5	6.7	1465.5
	Spring 2013	0.5	1465.0	350.4	4.4	113.1	931.4	283.9	70.3	26.9	34.9	1465.5
Total FLEPPC I	Spring 2008	0.5	1465.0	80.8	387.2	866.6	141.7	56.3	3.0	10.2		1465.5
	Spring 2009	0.5	1465.0	71.5	452.2	827.5	135.4	37.4	2.5	9.9		1465.5
	Spring 2010	0.5	1465.0	51.3	532.4	814.9	88.7	29.0				1465.5
	Spring 2011	0.5	1465.0	45.7	602.0	779.3	53.6	30.1				1465.5
	Spring 2012	0.5	1465.0	39.4	631.0	740.7	93.2	0.0				1465.5
	Spring 2013	7.6	1457.8	62.0	355.0	909.0	176.3	17.5				1465.5
Total FLEPPC II	Spring 2008	124.5	1341.0	63.0	524.4	598.7	193.8	6.7	17.3			1465.5
	Spring 2009	124.5	1341.0	61.3	500.8	641.4	174.7	6.7	17.3			1465.5
	Spring 2010	134.7	1330.8	59.9	505.4	633.6	168.2	6.5	17.1			1465.5
	Spring 2011	124.5	1341.0	61.6	488.4	653.8	174.7	6.7	17.3			1465.5
	Spring 2012	124.5	1341.0	59.5	489.6	652.6	174.8	6.7	17.3			1465.5
	Spring 2013	116.3	1349.2	98.4	453.5	731.6	135.7	11.1	17.3			1465.5
Non-Listed	Spring 2008	29.3	1436.2	98.4	4.9	1035.6	360.1	35.6				1465.5
	Spring 2009	29.3	1436.2	94.4	30.6	1080.6	266.9	58.1				1465.5
	Spring 2010	20.2	1445.3	124.1	25.9	847.5	515.2	56.7				1465.5
	Spring 2011	13.3	1452.2	125.5	21.6	870.0	499.3	55.4	5.8			1465.5
	Spring 2012	17.3	1448.1	120.2	13.2	889.5	500.1	39.5	5.8			1465.5
	Spring 2013	10.2	1455.3	240.8	4.2	458.9	715.9	228.0	30.7	17.6		1465.5

*Sum of infested acres for each cover class multiplied by the midpoint of the percent cover category

**Total Acreage considered inside footprint is less than 2011 because some areas re-disturbed prior to re-survey were not included in calculations this year

Table 3: Summary of Actual Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (Excluding Areas At "Maintenance Level")

Category	Spring 2008		Spring 2009		Spring 2010		Spring 2011		Spring 2012		Spring 2013		Total Acres
	Actual Coverage*	% of Site	Actual Coverage*	% of Site	Actual Coverage*	% of Site	Actual Coverage*	% of Site	Actual Coverage*	% of Site	Actual Coverage*	% of Site	
Total Exotics	255.5	17.4%	224.6	15.3%	244.6	16.7%	231.4	15.8%	212.7	14.5%	350.4	23.9%	1465.0
Total FLEPPC I	80.8	5.5%	71.5	4.9%	51.3	3.5%	45.7	3.1%	39.4	2.7%	62.0	4.2%	1465.0
Total FLEPPC II	62.99	4.3%	61.29	4.2%	59.9	4.1%	61.6	4.2%	59.5	4.1%	98.4	6.7%	1465.0
Non-Listed	98.4	6.7%	94.4	6.4%	124.1	8.5%	125.5	8.6%	120.2	8.2%	240.8	16.4%	1465.0

**sum of infested acres for each cover class multiplied by the midpoint of the percent cover category*

Table 4: Total Infested Acres by Cover Class and Actual Area Covered by Invasive Exotics in Prairie Canal Cleared Footprints (Upper 2 Miles of Prairie Canal Footprint)

Category	Period	0% (No Infestation)	Total Infested Acres	Actual Coverage*	<1%	1-5%	5-25%	25-50%	50-75%	75-95%	95-100%	Total Acres**
Total Exotics	Spring 2008	0.0	45.7	8.3	0.4	1.2	37.1	7.1				45.7
	Spring 2009	0.0	45.7	5.7	0.4	9.4	36.0					45.7
	Spring 2010	0.0	45.7	5.7	0.6	9.2	36.0					45.7
	Spring 2011	0.0	45.7	5.7	0.4	9.5	35.9					45.7
	Spring 2012	0.0	45.7	5.7	0.4	9.5	35.9					45.7
	Spring 2013	0.0	45.7	9.2	0.0	3.5	30.0	12.2				45.7
Total FLEPPC I	Spring 2008	0.0	45.7	2.2	1.5	37.1	7.1					45.7
	Spring 2009	0.0	45.7	1.3	1.1	44.6	0.0					45.7
	Spring 2010	0.0	45.7	1.3	1.1	44.6	0.0					45.7
	Spring 2011	0.0	45.7	1.4	0.9	44.8	0.0					45.7
	Spring 2012	0.0	45.7	1.3	1.3	44.4	0.0					45.7
	Spring 2013	0.0	45.7	1.3	1.0	44.7	0.0					45.7
Total FLEPPC II	Spring 2008	0.6	45.1	1.0	13.0	32.1	0.0					45.7
	Spring 2009	0.6	45.1	1.0	13.0	32.1	0.0					45.7
	Spring 2010	0.6	45.1	1.0	13.0	32.1	0.0					45.7
	Spring 2011	11.2	34.5	1.0	2.4	32.1	0.0					45.7
	Spring 2012	11.2	34.5	1.0	2.4	32.1	0.0					45.7

Category	Period	0% (No Infestation)	Total Infested Acres	Actual Coverage*	<1%	1-5%	5-25%	25-50%	50-75%	75-95%	95-100%	Total Acres**
	Spring 2013	11.2	34.5	1.0	2.4	32.1	0.0					45.7
Non-Listed	Spring 2008	0.4	45.4	5.2	0.0	13.2	32.1					45.7
	Spring 2009	0.4	45.4	4.4	0.0	20.4	25.0					45.7
	Spring 2010	0.6	45.1	4.4	0.0	20.1	25.0					45.7
	Spring 2011	0.4	45.4	4.4	0.0	20.4	25.0					45.7
	Spring 2012	0.4	45.4	4.4	0.0	20.4	25.0					45.7
	Spring 2013	0.0	45.7	5.4	0.0	20.0	21.6	4.1				45.7
	*Sum of infested acres for each cover class multiplied by the midpoint of the percent cover category											
**Total Acreage considered inside footprint is less than 2011 because some areas re-disturbed prior to re-survey were not included in calculations this year												

Table 5: Summary of Actual Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (Upper 2 Miles of Prairie Canal)

Category	Spring 2008		Spring 2009		Spring 2010		Spring 2011		Spring 2012		Spring 2013		Total Acres
	Actual Coverage *	% of Site	Actual Coverage *	% of Site	Actual Coverage*	% of Site	Actual Coverage*	% of Site	Actual Coverage*	% of Site	Actual Coverage*	% of Site	
Total Exotics	8.3	18.1	5.7	12.4	5.7	12.4	5.7	12.4	5.7	12.4	9.2	20.1	45.7
Total FLEPPC I	2.2	4.8	1.3	2.9	1.3	2.9	1.4	3.0	1.3	2.9	1.3	3.0	45.7
Total FLEPPC II	1.03	2.2	1.03	2.2	1.03	2.2	1.0	2.1	1.0	2.1	1.0	2.1	45.7
Non-Listed	5.2	11.4	4.4	9.5	4.4	9.5	4.4	9.5	4.4	9.5	5.4	11.8	45.7

**sum of infested acres for each cover class multiplied by the midpoint of the percent cover category*

Table 6: Total Infested Acres by Cover Class and Actual Area Covered by Invasive Exotics in Prairie Canal Cleared Footprints (E-W roads from 104th through 116th and E of Patterson)

Category	Period	0% (No Infestation)	Total Infested Acres	Actual Coverage*	<1%	1-5%	5-25%	25-50%	50-75%	75-95%	95-100%	Total Acres**
Total Exotics	Spring 2008	0.0	210.0	13.8		147.8	62.2					210.0
	Spring 2009	0.0	210.0	13.0		154.0	56.1					210.0
	Spring 2010	0.0	210.0	12.2		161.2	48.8					210.0
	Spring 2011	0.0	210.0	11.2		169.2	40.8					210.0
	Spring 2012	0.0	210.0	13.1		153.7	56.3					210.0
	Spring 2013	0.0	210.0	27.2		36.2	173.8					210.0
Total FLEPPC I	Spring 2008	0.0	210.0	5.5	33.1	176.9						210.0
	Spring 2009	0.0	210.0	5.8	33.1	174.5	2.4					210.0
	Spring 2010	0.0	210.0	4.7	65.2	144.9						210.0
	Spring 2011	0.0	210.0	4.4	77.7	132.3						210.0
	Spring 2012	0.0	210.0	4.2	84.0	126.0						210.0
	Spring 2013	0.0	210.0	5.9	16.5	193.5						210.0
Total FLEPPC II	Spring 2008	0.0	210.0	2.4	157.2	52.9						210.0
	Spring 2009	0.0	210.0	2.4	157.2	52.9						210.0
	Spring 2010	0.0	210.0	2.4	157.2	52.9						210.0
	Spring 2011	0.0	210.0	2.4	155.3	54.7						210.0
	Spring 2012	0.0	210.0	2.4	155.3	54.7						210.0
	Spring 2013	0.0	210.0	2.4	155.3	54.7						210.0
Non-Listed	Spring 2008	0.0	210.0	6.3		210.0						210.0
	Spring 2009	0.0	210.0	6.3		210.0						210.0
	Spring 2010	0.0	210.0	8.8		189.2	20.9					210.0
	Spring 2011	0.0	210.0	7.0		204.1	5.9					210.0
	Spring 2012	0.0	210.0	7.6		199.3	10.8					210.0
	Spring 2013	0.0	210.0	9.5		183.5	26.6					210.0

*Sum of infested acres for each cover class multiplied by the midpoint of the percent cover category

**Total Acreage considered inside footprint is less than 2011 because some areas re-disturbed prior to re-survey were not included in calculations this year

Table 7: Summary of Actual Area Covered by Invasive Exotics in Prairie Canal Phase Cleared Footprints (E-W roads from 104th through 116th and E of Patterson)

Category	Spring 2008		Spring 2009		Spring 2010		Spring 2011		Spring 2012		Spring 2013		Total Acres
	Actual Coverage*	Percent of Site	Actual Coverage*	Percent of Site	Actual Coverage*	Percent of Site	Actual Coverage*	Percent of Site	Actual Coverage*	Percent of Site	Actual Coverage*	Percent of Site	
Total Exotics	13.8	6.6%	13.0	6.2%	12.2	5.8%	11.2	5.3%	13.1	6.2%	27.2	12.9%	210.0
Total FLEPPC I	5.5	2.6%	5.8	2.7%	4.7	2.2%	4.4	2.1%	4.2	2.0%	5.9	2.8%	210.0
Total FLEPPC II	2.37	1.1%	2.37	1.1%	2.4	1.2%	2.4	1.2%	2.4	1.2%	2.4	1.2%	210.0
Non-Listed	6.3	3.0%	6.3	3.0%	8.8	4.2%	7.0	3.3%	7.6	3.6%	9.5	4.5%	210.0

**sum of infested acres for each cover class multiplied by the midpoint of the percent cover category*

Table 8: Individual Species Cover, Prairie Canal Footprints, Excluding Areas at "Maintenance Level".

Year	Target Percent Cover (<)										
	1	?	5	1	5	?	?	1	1	5	1
	Schitere	Bothpert	Cynodact	Diosbulb	Eragatro	Eragbahi	Hetecont	Hyparufa	Impecyli	Lantcama	Leucleuc
2013	1.22%	0.37%	1.02%	0.00%	0.77%	0.00%	1.75%	0.22%	0.07%	0.81%	0.00%
2012	0.56%	0.08%	0.45%	0.00%	0.33%	0.00%	0.43%	0.21%	0.03%	0.40%	0.00%
2011	0.56%	0.08%	0.20%	0.00%	0.33%	0.00%	0.51%	0.22%	0.08%	0.08%	0.00%
2010	0.55%	0.04%	0.30%	0.00%	0.08%	0.00%	0.38%	0.19%	0.09%	0.08%	0.00%
2009	1.58%	0.04%	0.16%	0.00%	0.08%	0.00%	0.51%	0.22%	0.17%	0.08%	0.00%
2008	2.58%	0.01%	0.16%	0.01%	0.08%	0.00%	1.13%	0.24%	0.18%	0.08%	0.00%

Year	Target Percent Cover (<)										
	5	1	1	?	?	1	1	1	5	1	1
	Ludwperu	Lygomirc	Melaquin	Nephmult	Nephcord	Neyrreyn	Panirepe	Panimaxi	Paspurvi	Pennpurp	Pennpoly
2013	0.02%	0.00%	0.02%	0.00%	0.02%	0.29%	0.25%	0.00%	0.26%	0.01%	0.00%
2012	0.02%	0.00%	0.00%	0.00%	0.02%	0.06%	0.07%	0.00%	0.24%	0.02%	0.00%
2011	0.02%	0.00%	0.00%	0.00%	0.02%	0.17%	0.11%	0.00%	0.20%	0.02%	0.00%
2010	0.02%	0.00%	0.00%	0.00%	0.02%	0.26%	0.19%	0.00%	0.29%	0.02%	0.00%
2009	0.02%	0.00%	0.00%	0.00%	0.02%	0.30%	0.07%	0.00%	0.13%	0.02%	0.00%
2008	0.02%	0.00%	0.00%	0.00%	0.02%	0.82%	0.07%	0.00%	0.13%	0.04%	0.00%

Year	Target Percent Cover (<)								
	5	5	1	?	?	5	5	1	
	Phraaust	Rhynrepe	Sennalat	Sporindi	Spervert	Typhdomi	Urenloba	Urocmuti	
2013	0.07%	0.77%	0.03%	4.54%	6.82%	0.09%	2.34%	0.00%	
2012	0.07%	0.69%	0.18%	2.69%	2.78%	0.11%	2.32%	0.00%	
2011	0.08%	1.44%	0.18%	3.02%	2.78%	0.34%	2.31%	0.00%	
2010	0.08%	1.72%	0.18%	3.02%	2.72%	0.43%	2.31%	0.00%	
2009	0.03%	2.08%	0.18%	1.62%	2.78%	0.30%	2.31%	0.00%	
2008	0.29%	1.45%	0.07%	1.24%	2.93%	0.30%	2.34%	0.00%	

*Prairie Canal Phase footprints, except Upper Two Miles of Canal and east to west roads south of 102nd and east of Patterson Blvd.

FLEPPC Category I Species	FLEPPC Category II Species	Non-FLEPPC Species
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Table 9: Individual Species Cover, Prairie Canal Phase footprints, Upper Two Miles of Canal.

Year	Target Percent Cover (<)										
	1	?	5	1	5	?	?	1	1	5	1
	Schitere	Bothpert	Cynodact	Diosbulb	Eragatro	Eragbahi	Hetecont	Hyparufa	Impecyli	Lantcama	Leucleuc
2013	0.50%	0.00%	1.56%	0.00%	1.49%	0.00%	0.00%	0.00%	0.46%	0.12%	0.00%
2012	0.50%	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.46%	0.12%	0.00%
2011	0.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.47%	0.12%	0.00%
2010	0.49%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.47%	0.12%	0.06%
2009	0.49%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.47%	0.12%	0.36%
2008	0.49%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.47%	0.12%	0.36%

Year	Target Percent Cover (<)										
	5	1	1	?	?	1	1	1	5	1	1
	Ludwperu	Lygomirc	Melaquin	Nephmult	Nephcord	Neyrreyn	Panirepe	Panimaxi	Paspurvi	Pennpurp	Pennpoly
2013	0.00%	0.00%	0.00%	0.00%	0.00%	0.46%	0.61%	0.00%	0.23%	0.00%	0.00%
2012	0.00%	0.00%	0.00%	0.00%	0.00%	0.46%	0.16%	0.00%	0.23%	0.00%	0.00%
2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.47%	0.16%	0.00%	0.23%	0.00%	0.00%
2010	0.00%	0.00%	0.00%	0.00%	0.00%	0.47%	0.47%	0.00%	0.23%	0.00%	0.00%
2009	0.00%	0.00%	0.00%	0.00%	0.00%	0.47%	0.17%	0.00%	0.23%	0.00%	0.00%
2008	0.00%	0.00%	0.00%	0.00%	0.00%	3.03%	0.11%	0.00%	0.23%	0.00%	0.00%

Year	Target Percent Cover (<)								
	5	5	1	?	?	5	5	1	
	Phraaust	Rhynrepe	Sennalat	Sporindi	Spervert	Typhdomi	Urenloba	Urocmuti	
2013	0.00%	0.13%	0.00%	1.86%	7.72%	0.41%	0.35%	0.00%	
2012	0.00%	0.00%	0.00%	1.86%	7.70%	0.41%	0.35%	0.00%	
2011	0.00%	0.00%	0.00%	1.86%	7.70%	0.41%	0.35%	0.00%	
2010	0.00%	0.00%	0.00%	1.86%	7.69%	0.41%	0.35%	0.00%	
2009	0.00%	0.19%	0.00%	1.86%	7.70%	0.41%	0.35%	0.00%	
2008	0.00%	0.19%	0.00%	2.25%	9.96%	0.41%	0.35%	0.00%	

FLEPPC Category I Species	FLEPPC Category II Species	Non-FLEPPC Species
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Table 10: Individual Species Cover, Prairie Canal Phase footprints, East of Patterson South of 102nd.

Year	Target Percent Cover (<)										
	1	?	5	1	5	?	?	1	1	5	1
	Schitere	Bothpert	Cynodact	Diosbulb	Eragatro	Eragbahi	Hetecont	Hyparufa	Impecyli	Lantcama	Leucleuc
2013	0.60%	0.35%	0.00%	0.00%	0.24%	0.00%	0.00%	0.01%	0.13%	0.32%	0.00%
2012	0.50%	0.35%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	0.18%	0.15%	0.00%
2011	0.50%	0.35%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	0.17%	0.15%	0.00%
2010	0.50%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	0.16%	0.15%	0.00%
2009	0.50%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	0.46%	0.15%	0.00%
2008	0.50%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	0.46%	0.15%	0.00%
Year	Target Percent Cover (<)										
	5	1	1	?	?	1	1	1	5	1	1
	Ludwperu	Lygomirc	Melaquin	Nephmult	Nephcord	Neyrreyn	Panirepe	Panimaxi	Paspurvi	Pennpurp	Pennpoly
2013	0.00%	0.00%	0.16%	0.00%	0.00%	0.04%	0.00%	0.00%	0.45%	0.00%	0.00%
2012	0.00%	0.00%	0.05%	0.00%	0.00%	0.05%	0.00%	0.00%	0.15%	0.04%	0.00%
2011	0.00%	0.00%	0.05%	0.00%	0.00%	0.08%	0.00%	0.00%	0.02%	0.04%	0.00%
2010	0.00%	0.00%	0.05%	0.00%	0.00%	0.22%	0.03%	0.00%	0.02%	0.04%	0.00%
2009	0.00%	0.00%	0.05%	0.00%	0.00%	0.22%	0.03%	0.00%	0.02%	0.20%	0.00%
2008	0.00%	0.00%	0.05%	0.00%	0.00%	0.22%	0.03%	0.00%	0.02%	0.07%	0.00%
Year	Target Percent Cover (<)										
	5	5	1	?	?	5	5	1			
	Phraaust	Rhynrepe	Sennalat	Sporindi	Spervert	Typhdomi	Urenloba	Urocmuti			
2013	0.00%	0.02%	0.00%	1.15%	2.30%	0.00%	0.12%	0.00%			
2012	0.00%	0.03%	0.00%	1.61%	0.70%	0.07%	0.12%	0.00%			
2011	0.00%	0.00%	0.00%	1.22%	0.70%	0.08%	0.12%	0.00%			
2010	0.00%	0.00%	0.00%	2.34%	0.70%	0.07%	0.12%	0.00%			
2009	0.00%	0.46%	0.00%	0.50%	0.70%	0.07%	0.12%	0.00%			
2008	0.00%	0.46%	0.00%	0.50%	0.70%	0.07%	0.12%	0.00%			
FLEPPC Category I Species				FLEPPC Category II Species				Non-FLEPPC Species			

Table 11: Individual Species Cover, Prairie Canal Phase Demolition Sites and their Buffers.

Year	Target Percent Cover (<)										
	1	?	5	1	5	?	?	1	1	5	1
	Schitere	Bothpert	Cynodact	Diosbulb	Eragatro	Eragbahi	Hetecont	Hyparufa	Impecyli	Lantcama	Leucleuc
2013	2.45%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.12%	0.00%	0.00%
2012	2.43%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.21%	0.00%	0.00%
2011	2.43%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.29%	0.00%	0.00%
2010	8.15%	0.00%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.66%	0.00%	0.00%
2009	14.14%	0.00%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.66%	0.00%	0.00%
2008	14.16%	0.00%	0.00%	0.06%	0.02%	0.00%	0.00%	0.00%	0.59%	0.00%	0.00%

Year	Target Percent Cover (<)										
	5	1	1	?	?	1	1	1	5	1	1
	Ludwperu	Lygomirc	Melaquin	Nephmult	Nephcord	Neyrreyn	Panirepe	Panimaxi	Paspurvi	Pennpurp	Pennpoly
2013	0.00%	0.00%	0.01%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	0.00%	0.00%
2012	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%	0.00%	0.01%	0.02%	0.00%	0.00%
2011	0.00%	0.00%	0.01%	0.00%	0.00%	0.02%	0.00%	0.00%	0.02%	0.00%	0.00%
2010	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%
2009	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%
2008	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.35%	0.00%

Year	Target Percent Cover (<)								
	5	5	1	?	?	5	5	1	
	Phraaust	Rhynrepe	Sennalat	Sporindi	Spervert	Typhdomi	Urenloba	Urocmuti	
2013	0.00%	0.27%	0.00%	0.58%	0.31%	0.01%	0.50%	0.00%	
2012	0.00%	0.26%	0.00%	0.67%	0.02%	0.01%	0.50%	0.00%	
2011	0.00%	0.38%	0.00%	0.26%	0.02%	0.01%	2.49%	0.00%	
2010	0.00%	0.46%	0.00%	0.48%	0.02%	0.01%	0.00%	0.00%	
2009	0.00%	0.46%	0.00%	0.48%	0.02%	0.01%	0.00%	0.00%	
2008	0.00%	0.22%	0.00%	0.45%	0.05%	0.01%	0.02%	0.01%	

FLEPPC Category I Species	FLEPPC Category II Species	Non-FLEPPC Species
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Table 12: Individual Species Cover, Merritt Canal Phase Footprints.

Year	Target Percent Cover (<)										
	1	?	5	1	5	?	?	1	1	5	1
	Schitere	Bothpert	Cynodact	Diosbulb	Eragatro	Eragbahi	Hetecont	Hyaparufa	Impecyli	Lantcama	Leucleuc
2013	2.84%	0.08%	0.06%	0.00%	0.01%	0.00%	4.75%	0.05%	0.10%	0.96%	0.03%
2012	2.14%	0.00%	0.03%	0.00%	0.00%	0.00%	3.65%	0.06%	0.14%	0.18%	0.01%
Year	Target Percent Cover (<)										
	5	1	1	?	?	1	1	1	5	1	1
	Ludwperu	Lygomicr	Melaquin	Nephmult	Nephcord	Neyrreyn	Panirepe	Panimaxi	Paspurvi	Pennpurp	Pennpoly
2013	0.02%	0.00%	0.00%	0.00%	0.00%	0.36%	0.02%	0.01%	0.23%	0.00%	0.01%
2012	0.00%	0.00%	0.00%	0.00%	0.00%	0.42%	0.02%	0.05%	0.08%	0.00%	0.02%
Year	Target Percent Cover (<)										
	5	5	1	?	?	5	5	1			
	Phraaust	Rhynrepe	Sennalat	Sporindi	Spervert	Typhdomi	Urenloba	Urocmuti			
2013	0.07%	1.66%	0.00%	6.48%	10.26%	0.10%	4.58%	0.00%			
2012	0.03%	0.36%	0.00%	4.97%	0.50%	0.44%	5.46%	0.00%			
FLEPPC Category I Species			FLEPPC Category II Species				Non-FLEPPC Species				

Table 13: Individual Species Cover, Merritt Canal Phase Demolition Sites and their Buffers.

Year	Target Percent Cover (<)										
	1	?	5	1	5	?	?	1	1	5	1
	Schitere	Bothpert	Cynodact	Diosbulb	Eragatro	Eragbahi	Hetecont	Hyparufa	Impecyli	Lantcama	Leucleuc
2013	5.97%	0.00%	0.00%	0.01%	0.00%	0.00%	0.05%	0.01%	0.87%	0.22%	0.01%
2012	5.97%	0.00%	0.00%	0.01%	0.00%	0.00%	0.04%	0.02%	1.22%	0.19%	0.02%
2011	5.94%	0.00%	0.00%	0.01%	0.00%	0.00%	0.03%	0.02%	1.07%	0.19%	0.01%
2010	1.29%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.12%	0.16%	0.11%
2009	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.10%	0.00%	0.11%
2008	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%

Year	Target Percent Cover (<)										
	5	1	1	?	?	1	1	1	5	1	1
	Ludwperu	Lygomirc	Melaquin	Nephmult	Nephcord	Neyrreyn	Panirepe	Panimaxi	Paspurvi	Pennpurp	Pennpoly
2013	0.00%	0.00%	0.10%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.01%
2012	0.00%	0.00%	0.10%	0.00%	0.00%	0.01%	0.00%	0.01%	0.00%	0.00%	0.02%
2011	0.00%	0.00%	0.20%	0.00%	0.00%	0.01%	0.00%	0.01%	0.00%	0.00%	0.02%
2010	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2009	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%
2008	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Year	Target Percent Cover (<)								
	5	5	1	?	?	5	5	1	
	Phraaust	Rhynrepe	Sennalat	Sporindi	Spervert	Typhdomi	Urenloba	Urocmuti	
2013	0.00%	0.02%	0.00%	3.67%	0.04%	0.00%	0.74%	0.00%	
2012	0.00%	0.00%	0.00%	3.65%	0.01%	0.00%	0.74%	0.00%	
2011	0.00%	0.00%	0.00%	3.64%	0.01%	0.00%	0.73%	0.00%	
2010	0.00%	0.00%	0.00%	1.10%	0.01%	0.00%	0.00%	0.00%	
2009	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
2008	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

FLEPPC Category I Species

FLEPPC Category II Species

Non-FLEPPC Species

Table 14: Individual Species Cover, Prairie Canal Logging Tram Footprints.

Year	Target Percent Cover (<)										
	1	?	5	1	5	?	?	1	1	5	1
	Schitere	Bothpert	Cynodact	Diosbulb	Eragatro	Eragbahi	Hetecont	Hyaparufa	Impecyli	Lantcama	Leucleuc
2013	2.28%	0.00%	0.00%	0.00%	0.01%	0.00%	0.43%	0.00%	0.05%	0.32%	0.00%
2012	1.65%	0.00%	0.00%	0.00%	0.01%	0.00%	0.98%	0.00%	0.01%	0.02%	0.00%
Year	Target Percent Cover (<)										
	5	1	1	?	?	1	1	1	5	1	1
	Ludwperu	Lygomir	Melaquin	Nephmult	Nephcord	Neyrreyn	Panirepe	Panimaxi	Paspurvi	Pennpurp	Pennpoly
2013	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.07%	0.00%	0.00%
2012	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.03%	0.00%	0.00%
Year	Target Percent Cover (<)										
	5	5	1	?	?	5	5	1			
	Phraaust	Rhynrepe	Sennalat	Sporindi	Spervert	Typhdomi	Urenloba	Urocmuti			
2013	0.01%	0.37%	0.00%	0.52%	0.09%	0.23%	23.80%	0.00%			
2012	0.01%	0.37%	0.00%	0.46%	0.07%	0.39%	26.19%	0.00%			
FLEPPC Category I Species			FLEPPC Category II Species				Non-FLEPPC Species				

Table 15: Individual Species Cover, Merritt Canal Logging Tram Footprints.

Year	Target Percent Cover (<)										
	1	?	5	1	5	?	?	1	1	5	1
	Schitere	Bothpert	Cynodact	Diosbulb	Eragatro	Eragbahi	Hetecont	Hyaparufa	Impecyli	Lantcama	Leucleuc
2013	1.98%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%	0.23%	0.00%
2012	1.97%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.26%	0.15%	0.00%
Year	Target Percent Cover (<)										
	5	1	1	?	?	1	1	1	5	1	1
	Ludwperu	Lygomicr	Melaquin	Nephmult	Nephcord	Neyrreyn	Panirepe	Panimaxi	Paspurvi	Pennpurp	Pennpoly
2013	0.00%	0.00%	0.01%	0.00%	0.00%	0.13%	0.00%	0.02%	0.02%	0.00%	0.00%
2012	0.00%	0.00%	0.01%	0.00%	0.00%	0.13%	0.00%	0.15%	0.11%	0.00%	0.00%
Year	Target Percent Cover (<)										
	5	5	1	?	?	5	5	1			
	Phraaust	Rhynrepe	Sennalat	Sporindi	Spervert	Typhdomi	Urenloba	Urocmuti			
2013	0.00%	0.49%	0.00%	2.06%	0.39%	0.03%	28.39%	0.00%			
2012	0.00%	0.46%	0.00%	2.05%	0.11%	0.03%	28.39%	0.00%			
FLEPPC Category I Species			FLEPPC Category II Species				Non-FLEPPC Species				

Table 16. Approximate Costs by Treatment in FY 2013

COST	Treatment	Dates	Location	0	0-<1%	1-5%	5-25%	25-50%	50-75%	75-95%	>95 %	Total Acres
N/A (lumped with next item)	Schitere Prairie Canal	9/7/2012	Inside Footprint		15.7							15.7
\$120,981.00	Schitere Merritt Canal (SFWMD)	9/7/2012 to 11/29/2012	Demolition Site	9.5	1.3	14.4	0.5	2.6				28.3
			Demolition Site Buffer	347.9	35.0	83.9	23.4	0.1				490.4
			Adjacent to Footprint	0.8	0.4	6.0						7.3
			Inside Footprint	0.3	7.2							7.5
			TOTAL:	358.6	59.7	104.2	23.9	2.7	0.0	0.0		549.1
\$22,750.00	Cogongrass/fo liar Merritt Canal (SFWMD)	11/1/2012 to 11/29/2012	Demolition Site	3.5	7.4	2.2						13.1
			Demolition Site Buffer	45.1	217.0	8.3			0.1	1.2		271.6
			Inside Footprint	6.5	1.5							8.0
			TOTAL:	55.1	225.9	10.4	0.0	0.0	0.1	1.2		292.7
\$718.00	Jaraguá Prairie Canal Footprints and Demolition Sites Re-Treatment (ACOE)	week of 11/8/2012	Inside Footprint	170.0	109.5	70.2						349.6
			50' outside footprint	12.1	0.1							12.1
			Demolition Site	13.1	2.3							15.4
			Demolition Site Buffer	33.4	0.2	0.5						34.1
\$718.00	Jaraguá Merritt Canal Footprints and Demolition Sites Re-Treatment (SFWMD)	week of 11/8/2012	Inside Footprint	262.5	54.7	3.5						320.7
			Inside Logging Tram Footprint	1.4								1.4
			Demolition Site	16.1	1.5				0.5			18.2
			Demolition Site Buffer	6.3	3.1	0.2						9.6
			TOTAL:	514.8	171.4	74.4	0.0	0.0	0.5	0.0	0.0	761.1
\$82,363.00	Foliar (backpack) Merritt Canal Footprints Initial Treatment (ACOE)	11/29/2012 to 4/8/2013	Inside Footprint	21.4	39.6	126.1	45.6	6.3				239.0
			Adjacent to Footprint	230.5	165.2	12.2	9.5		1.6	2.7		421.6
			Inside Logging Tram Footprint	4.2	1.2		0.6					6.0
			Merritt Demolition Site	3.0	0.3	8.2	1.2					12.7
			Merritt Demolition	134.0	133.9	120.2	8.8	1.4	2.3	2.5		403.1

COST	Treatment	Dates	Location	0	0-<1%	1-5%	5-25%	25-50%	50-75%	75-95%	>95 %	Total Acres	
			Site Buffer										
			TOTAL:	393.1	340.3	266.7	65.7	7.7	3.8	5.2		1082.4	
\$96,500.00	Foliar Prairie Canal Footprints and Demolition Sites Re-Treatment (SFWMD)	1/28/2013 to 4/26/2013	Inside Footprint	129.2	268.7	985.8	276.7	21.1	5.8			1687.3	
			Adjacent to Footprint	605.6	85.0	35.6	8.7	0.2	0.0			735.1	
			Inside Logging Tram Footprint	2.5	0.3	0.4							3.3
			Demolition Site	12.8	12.6	2.6	14.6	9.4					52.0
			Demolition Site Buffer	122.6	146.2	11.8	0.7		0.1	0.2			281.6
\$20,275.00	Foliar Merritt Canal Demolition Sites Re-Treatment with some Initial Treatment (SFWMD)	4/22/2013 to 5/17/2013	Demolition Site	10.0	35.4	67.6	2.2					115.1	
			Demolition Site Buffer	24.0	33.4	24.6	7.9	2.0	1.3	4.1		97.2	
\$3,361.00	Miller Canal Phase Demolition Site and Soil Remediation Sites Foliar Re-Treatment (Partial)	5/1/2013 to 5/8/2013	Demolition Site	0.0		0.4	8.4	0.1	0.1			9.0	
			Soil Remediation	0.2	1.4	14.3	30.6	8.7	2.4			57.5	
N/A	Cut Stump and Basal Bark at home site 66th (SFWMD)	Prairie Canal Demolition Sites	4/8/2013 to 4/9/2013	0.0	2.7	1.8	0.2	1.2	0.0	0.0	0.0	5.9	
\$50,000.00	Cut Stump melaleuca (FWC funds)	Bad Luck Prairie, Miller Extension, up to 66th West of Miller	2/6/2013 to 3/26/2013	712.1	2935.6	155.9	37.4	8.1	15.1	15.5	0.0	3879.9	
	Totals			712.1	2935.6	155.9	37.4	8.1	15.1	15.5	0.0	3879.9	
\$26,930.00	Merritt Canal Footprints Initial Treatment (ACOE) Foliar	4/9/2013 to 5/27/2013	Inside Footprint	234.9	379.8	644.6	223.9	25.7				1508.8	
			Adjacent to Footprint	18.3	7.6	1.5	0.3		0.5			28.2	
			Inside Logging Tram Footprint	45.8	26.7	5.889	4.1					82.5	
			Merritt Demolition Site	5.0	3.7	13.6	0.5					22.8	
			Merritt	108.8	16.0	9.7	1.0		0.3			135.9	

COST	Treatment	Dates	Location	0	0-<1%	1-5%	5-25%	25-50%	50-75%	75-95%	>95%	Total Acres
			Demolition Site Buffer									
			TOTAL:	412.9	433.9	675.3	229.7	25.7	0.8	0.0		1778.2

Appendix 1: Acceptable Maintenance Levels of Picayune Nuisance Exotic and Native Plant Species

Scientific Name	Common Names	Target Ground Cover (%)	Wetland (W) Upland (U)	FLEPPC Category I or II	Ability to Control Based on Our Treatment Control since 2008	Maintenance Treatment Schedule	Monitoring Schedule
<i>Dioscorea bulbifera</i>	Air potato	<1	U	I	Multiple retreatments every ** For years	1X/Yr	1X/Yr
<i>Hymenachne</i>	West Indian Marsh Grass	<1	W	I	But where downstream and untreated Hymenachne - No	1X/Yr	1X/Yr
<i>Imperata cylindrica</i>	Congongrass, Cogongrass	<1	U	I	Requires multiple treatments - some areas to 0 now took >10 treatments	1-2X/Yr	1X/Yr
<i>Lygodium sp.</i>	Climbing fern	<1	W	I		Opportunistic	Opportunistic
<i>Melaleuca quinquenervia</i>	Punktree	<1	W	I	After get control of large trees, establish a 3-year cycle of retreatment for new seedlings; if miss a cycle, have to plan on a more frequent cycle to catch up	3 Yr	3 Yr
<i>Neyraudia reynaudiana</i>	Burmareed, Silkreed	<1	U	I		3 Yr	3 Yr
<i>Panicum repens</i>	Torpedo grass	<1	W	I		1-2X/Yr	1-2X/Yr
<i>Pennisetum purpureum</i>	Napier grass, Elephantgrass	<1	U	I		3 Yr	3 Yr
<i>Schinus terebinthifolius</i>	Brazilian-pepper	<1	U	I		3-5 Yr	3-5 Yr
<i>Senna pedula</i>		<1	U	I		Opportunistic	Opportunistic
<i>Urochloa mutica</i>	Paragrass	<1	W	I	Treated one patch and it's gone; more exists along Faka Union Canal	?	?
<i>Lantana camara</i>	Shrubverbena	<5	U	I	Should be timed with the pepper treatments, but can be foliar treated if do all leaves	3-5 Yr	3-5 Yr
<i>Ludwigia peruviana</i>	Peruvian primrosewillow	<5	W	I		?	?

Scientific Name	Common Names	Target Ground Cover (%)	Wetland (W) Upland (U)	FLEPPC Category I or II	Ability to Control Based on Our Treatment Control since 2008	Maintenance Treatment Schedule	Monitoring Schedule
<i>Melinis repens</i>	Rose Natalgrass	<5	U	I	Grows fast; flowers fast; need to find contractors who recognize it without flowers	1-2X/Yr	1-2X/Yr
<i>Urena lobata</i>	Caesarweed	<5	U	I	timing with fire or clearing (i.e. 1st year) **	Opportunistic	Opportunistic
<i>Nephrolepis cordifolia</i>	Tuberous sword fern	?	U	I	May hybridize with <i>Nephrolepis exal/lois</i> (natives); may be lost cause? Non-target damage?	?	?
<i>Nephrolepis multiflora</i>	Asian sword fern	?	U	I	May hybridize with <i>Nephrolepis exal/lois</i> (natives); may be lost cause? Non-target damage?	?	?
<i>Hemarthria altissima</i>		<1	W	II	According to ove ** & Ellen's colleagues	?	?
<i>Hyparrhenia rufa</i>	Jaraguá	<1	U	II	Seed bank? Yes- so far all patches treated since 2009 still have little bit left	1X/Yr	1X/Yr
<i>Panicum maximum</i>	Guineagrass	<1	U	II	But can re-emerge after years of 0; seedbank	1X/Yr	1X/Yr
	Leadtree & other hard-to-kill	<1	U	II	Treatable; save vague: higher concentration of chemical	3-5 Yr	3-5 Yr
<i>Dactyloctenium aegyptium</i>	Crow's-foot grass, Durban crowfootgrass	<5	U	II	Not applicable - ** - hope it goes away. Has been reduced along Prairie Canal	NA	NA
<i>Pennisetum polystachion</i>	West Indian Pennisetum	<1	U			1X/Yr	1X/Yr
<i>Rottbiler cochsisicus</i>	Itchgrass	<1	U		Retreatments - multiple	Opportunistic	Opportunistic
<i>Senna alata</i>	Candlestick plant	<1	U		Takes retreatments	1X/Yr	1X/Yr
<i>Cynodon dactylon</i>	Bermuda grass	<5	U		Hard to kill - word from LA that it is controllable, but we have lost ground so far	1X/Yr	1X/Yr

Scientific Name	Common Names	Target Ground Cover (%)	Wetland (W) Upland (U)	FLEPPC Category I or II	Ability to Control Based on Our Treatment Control since 2008	Maintenance Treatment Schedule	Monitoring Schedule
<i>Eragrostis atrovirens</i>	Thalia love grass	<5	W		Too much trouble to train crews so far		
<i>Paspalum urvillei</i>	Vasey grass	<5	Both		Expanded extent, not cover despite treatment	1X/Yr	1X/Yr
<i>Phragmites australis</i>	Common reed	<5	W		Hard to kill; requires heavy dose of herbicide	1-3 Yr	1X/Yr
<i>Typha domingensis</i>	Southern cattail	<5	W		Maybe okay if greater **/** 1-5? ; Mfs-maybe not controllable		1X/Yr
<i>Bothriochloa pertusa</i>	Pitted bluestem, Pitted beardgrass X	?	U		Only in ** Along actual **	?	?
<i>Eragrostis bahiensis</i>	lovegrass X	?	U		Had some preliminary success at soil remediation sites, then budget cut		
<i>Heteropogon contortus</i>	Tanglehead X	?	U		Had some success, then stopped this year		
<i>Spermacocea verticillata</i>	Buttonweed	?	U		Hard to kill	?	?
<i>Sporobolus indicus var. pyramidalis</i>	West Indian dropseed, smutgrass X	?	U			?	?
	X - Problem in footprints, but not in woods HI						
Anticipated Species (BOLO)							
<i>Mikania micrantha</i>	Mile-a-Minute Vine		U	II		Opportunistic	Opportunistic

Scientific Name	Common Names	Target Ground Cover (%)	Wetland (W) Upland (U)	FLEPPC Category I or II	Ability to Control Based on Our Treatment Control since 2008	Maintenance Treatment Schedule	Monitoring Schedule
<i>Scirpus cubensis</i>	Cuban bulrush		W			Opportunistic	Opportunistic
<i>Scleria lacutris</i>	Wright's nutsedge		W			Opportunistic	Opportunistic
<i>Urochloa</i> sp.	Sig Walker Grass		W			Opportunistic	Opportunistic

**Denotes uncertainty or items that were not discussed during meeting.