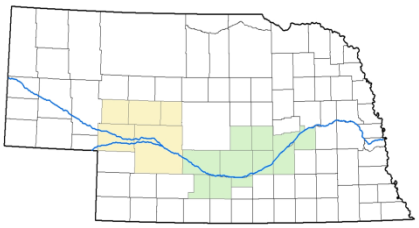
West Central and Platte Valley Weed Management Area's Invasive Species Control along the Platte River FY 2009 – 2019

Summary

In 2008 the Platte Valley Weed Management Area (PVWMA) and West Central Weed Management Area (WCWMA), collectively referred to as WMA's, collaborated to apply and receive grant funding for invasive plant species control within the Platte River channels of Nebraska. This joint effort allowed a larger landscape approach. The WMA's consist of 16 counties in south-central Nebraska. The WMA's boundary is Kingsley Dam on the North Platte River, the Keith/Deuel county line on the South Platte through the convergence at the town of North Platte, continuing downstream to Columbus, Nebraska.

West Central and Platte Valley WMA's



Approximately 334 River miles, 16 counties

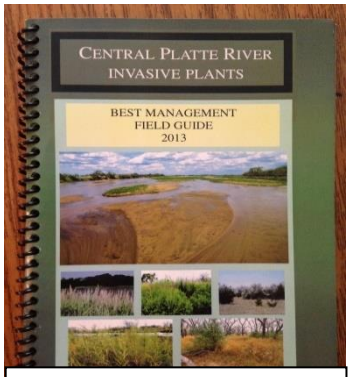
Approximately 334 river miles of the Platte River flow through the WMA's. The western half of the river in this project area is classified as over-appropriated, and the remaining portion is classified as fully appropriated. The primary focus of the WMA's is controlling invasive Phragmites australis (non-native common reed). Phragmites has taken over low-lying areas along the Platte River including riverbanks, wetlands, meadows, side channels, sloughs and sandbars. Infestations have constricted channels, increasing flooding potential and reducing wildlife habitat.

The WMA's goal is to reduce invasive plant species within the Platte River corridor. Objectives include: 1) increase flow conveyance
2) increase wildlife habitat
3) reduce water usage by invasive plant species and
4) ensure long-term sustainable control by landowners.

Control efforts started in both WMA's in 2008-09 and is ongoing. To date, a total of $6.1 million has been spent on this project with 91.8% of the funds being used for herbicide and mechanical control, 2.2% for monitoring, 1.7% for public outreach, 0.7% for legal and insurance costs and 3.6% for project coordination (Table 1). Funding sources are derived from several federal, state and local dollars (Table 2). In total, approximately 41,516 acres of invasive plants have been treated with herbicide and 2,500 acres of dead biomass have been mechanically removed (Table 3).

Outreach and Landowner Agreements

Prior to implementation numerous public meetings were hosted by county weed superintendents and the project coordinator to inform landowners about phragmites, control techniques, grant opportunities, and to garner support. Public meetings were well-attended and had positive feedback. Mass mailings were sent to landowners that did not attend public meetings. Ten-year agreements were obtained from landowners within the project area. Agreements allowed herbicide application and biomass removal on invasive plant species within the channels.



Best Management Guide produced for landowners

Approximately 720 landowners were contacted and agreements obtained. There was and continues to be overwhelming landowner support of this project. A variety of public relation activities take place every year. Multiple newspaper interviews were given, reports were published in local papers, and quarterly letters are sent to landowners informing them of the progress made and keeping them update on future plans.

To assist with long-term success and landowner support, a best management guide was produced and distributed by mail to all landowners along the central Platte River in 2013. The guide focused on local level invasive plant species present with identification, control and monitoring techniques for those species. It is available for downloading at www.plattevalleywma.org.

In 2013 a field day was hosted for all partners and key stakeholders. Field day was well attended with over 60 participants.

Control Implementation

Aerial and ground application techniques were used to apply herbicide while disking and shredding were used for biomass removal. Bid packages were sent to all contractors that showed interest in the project. Contractors were selected on price, quality of previous work, references and time frame available. To date, the majority of applications have been performed by helicopter and the biomass removal has been both by disking and shredding. Beginning in 2014, airboat application was started to address areas that are not controllable by helicopter. High river flows in 2010 prevented partial biomass removal from occurring but flows snapped two-year dead phragmites stems and removed the majority of standing dead biomass. Controlling infestations within and along Platte River main-channels were paid in full by partnering agencies. A cost share policy was established to assist landowners with infestations outside of channel high banks to reduce seed sources of the main channels.

Aerial Herbicide Application on Phragmites

Initial evaluation of control has been very positive. Herbicide application has proved effective with minimal re-infestations occurring. Flow conveyance has improved within the central Platte River as a result of this project and wildlife habitat has increased.

Initial Phragmites Infestation

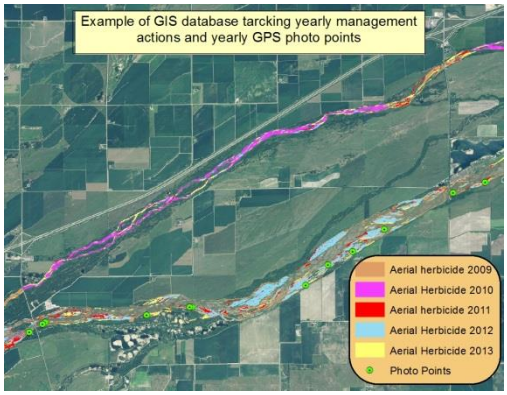
After Herbicide Application

Current View of Channel

Monitoring

One of the best methods of preventing and maintain control on invasive vegetation is monitoring through an Early Detection and Rapid Response program. By detecting invasive infestations at an early growth stage and small size the plant can be

treated at a much lower cost than waiting and attempting to control once plant infestation as become established.



Yearly helicopter flights are flown along river channels from Columbus, Nebraska to Ogallala, Nebraska to evaluate control measures and to document re-infestations and/or missed infestations. A photo-point monitoring plan was implemented using a GPS-enabled digital camera and voice GPS documenting system. Monitoring data is used to document success of treatments and for guiding future control. Detailed maps showing invasive plant infestations remaining, including the approximate acres have been produced and continually updated. Yearly monitoring is planned into the future to document long-term success of the project. County weed districts cost-shared on GPS cameras. Individual counties now have the ability to document infestations of invasive plants using their own GPS cameras. Documentations can be used at the local level but also combined in larger dataset to assist with larger monitoring program. In 2010, WMA's implemented a monitoring program designed to detect phragmites infestations outside of Platte River channels. Color infrared imagery and GIS is being used to detect infestations annually. County maps are produced and given to county weed districts to implement control measures. These outside infestations are considered seed sources and if not controlled have the ability to re-infest the channels of the Platte River.

A pilot water quality test was done during late September 2009. Eleven water samples were collected at four locations. In samples, Imazapyr was found to be far below FIFRA's LD50 of invertebrates' dosage which is greater than 100,000 ppb. The highest amount detected was 53 ppb in a slow moving backwater slough area that was surrounded by phragmites and received direct application. A complete water quality summary can be found at www.plattevalleywma.org.

The WMA's cooperated with the Platte River Recovery and Implementation Program to evaluate effectiveness of phragmites removal program on increasing flow conveyance. Using stream gauge data and existing HEC-RAS 1-dimensional hydraulic modeling we showed an increase on average of 15% flow conveyance at three sampling points. Though a small sample and conservative modeling approach the efforts of the WMA's have increased flow conveyance within the Platte River and have reduced flooding potential.

Future Goals

The WMA's have accomplished the initial control and are now focusing on monitoring and sustaining control within river channels. Yearly monitoring flights will supply needed information on any remaining infestations and help detect re-infestations at an early stage. Control techniques will occur on any detected infestations within channels of the Platte River. Infestations outside of river channels will be detected by aerial flights and county wide CIR

Overall goal – braided river channel free of invasive vegetation with moving sandbars

imagery analysis. County weed districts will help implement cost share policy and ensure control measures.

Public outreach is an ongoing endeavor. Mass mailings and public meetings are the primary communication strategy. Public media events will be attended as desired to promote WMA's. Newspaper and TV interviews will be given as needed.

Funding

Total project expenditures are shown in Table 1 and total match or other money leverage by WMA's with NET grant dollars is shown in Table 2. The WMA's continue to seek funding from state and federal grants and ways to partner with local stakeholders to fund control efforts. Current funding sources include: Nebraska Environmental Trust Fund, Platte River Recovery and Implementation Program, Nebraska Department Agriculture, Central Platte NRD, Nebraska Public Power District, Central Nebraska Public Power and Irrigation District, Ducks Unlimited, Twin-Platte NRD, and Tri-Basin NRD.

Table 1.

Total Project Expenditures by Category (2007- June 2019)

Herbicide application and removal	Monitoring	Public Outreach	Legal and Insurance	Coordinator salary*	Totals
$5,629,572.21	$139,605.42	$103,255.23	$42,704.60	$220,480.07	$6,135,617.53
91.8%	2.2%	1.7%	0.7%	3.6%	100%

*Includes salary, benefits, indirect costs and mileage expense, two coordinators in 2008. No funds used for coordinator salary since 2014.

Table 2.

Other monies matched by WMA's with NET grant dollars.

Funding Agency*	Total Expenditures**	Percentage of Funds
Nebraska Environmental Trust Fund Grant	$1,024,963.70	16.7%
Nebraska Department of Ag Noxious weed assistance fund grants	$2,131,653.40	34.7%
Central Platte NRD	$443,118.70	7.5%
Tri-Basin NRD	$21,697.83	0.3%
U.S. Fish and Wildlife Service	$45,000.00	0.6%
PSG and PTI - FWS grants (spent over three years)	$104,693.00	1.6%
Platte River Habitat Partnership	$1,000.00	
BASF chemical company	$3,300.00	
Ducks Unlimited and NAWCA grant	$177,132.00	3.0%
Platte River Recovery Program	$1,983,051.90	32.3%
Central Nebraska Public Power District	$75,000.00	1.3%
Nebraska Public Power District	$75,000.00	1.3%
Twin-Platte NRD	$50,000.00	0.7%
TOTAL	$6,135,617.53	100%

* Showing actual agency expenditures to PV and WC WMA's, total obligations may be higher.

**In-kind work is not included in this table. Throughout grant cycle hundreds of hours were in-kind contributions from county weed districts and landowners.

Table 3.

WCMA and PVWMA Herbicide Application on Platte River FY 2007-2019

WCWMA and PVWMA Herbicide Application on Platte River

Bridge Segment	River miles	Treated acres (actual 07 and	Treatment (actual 2009)	Treatment (actual 2010)	Treatment acres (actual 2011)	Treatment (actual 2012)	Treatment (actual 2013)	Treatment (actual 2014)	Treatment (actual 2015)	Treatment (actual 2016)	Treatment (actual 2017)	Treatment (actual 2018)	Treatment (actual 2019)
West End McCaughney	5			120									
North Platte River - Kingsley Dam to Hershey	40	0	574	313	20	294	280	60				5	16
North Platte River - Hershey to North Platte	15	375	380	291	30	150	288	222	27	450	275	25	39
South Platte – Keith/Duel county line – North Platte	63	100	96	30	39	184	208	144	50	400	225	35	181
North Platte to Gothenburg	30	2,219	0	517	464	154	288	522	38	395	380	127	134
Gothenburg to Cozad	13	830	0	325	114	146	346	126	71	620	55	50	144
Cozad to Darr	5	325	0	10	100	84	155	84	7	200	102	65	131
Darr to Lexington	5	550	0	250	100	73	104	66	5	200	125	40	92
Lexington to Overton	11	750	0	350	168	65	148	69	30	100	145	53	102
Overton to Elm Creek	7	450	0	192	147	62	54	69	6	345	139	65	150
Elm Creek to Odessa	7	0	410	33	182	42	36	180	100	5	187	10	51
Odessa to Kearney	9	0	607	25	74	81	106	180	100	5	259	60	65
Kearney to Minden	11	0	520	20	142	127	106	90	80	5	233	60	30
Minden to Gibbon	12	0	147	35	50	152	82	100	100	5	275	33	15
Gibbon to Shelton	9	0	429	460	180	167	118	102	100	5	315	75	53
Shelton to Wood River	10	0	100	505	183	150	138	86	115	5	320	35	75
Wood River to Alda North Channel	7	0	50	75	100	100	99	136	65	10	220	45	69
Wood River to Alda South Channel	7	0	176	150	100	100	157	83	110	50	220	15	66
Alda to Grand Island	6	41	226	44	115	38	102	73	166	110	279	73	59
Grand Island to #34	8	290	379	32	90	20	106	100	75	60	442	75	66
#34 to Chapman	8	0	877	150	126	26	72	120	90	10	290	115	60
Chapman to Central City	10	105	606	100	116	110	72	126	105	75	420	165	75
Central City to Clarks	10	249	442	125	100	85	160	128	75	75	415	120	51
Clarks to Silver Creek	10	300	700	100	100	75	150	20	50	10	345	100	77
Silver Creek to Columbus	16	200	736	150	100	92	246	20	50	110	300	150	61
TOTAL	**334**	**6,784**	**7,455**	**4,402**	**2,940**	**2,577**	**3,621**	**2,906**	**1,615**	**3,250**	**5,966**	**1,596**	**1,862**