Annual Report – Calendar Year 2022
Kentucky Wetland and Stream Fees-In-Lieu-Of Mitigation Program

In Accordance with
"Modification of the Agreement Concerning In-Lieu-Mitigation Fees between the
U.S. Army Corp of Engineers and
the Kentucky Department of Fish and Wildlife Resources"

LRL-2010-325
LRN-2011-00709
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Introduction

This report provides information on the Kentucky Wetland and Stream Mitigation "Fee-In-Lieu-of" (FILO) Program sponsored by the Kentucky Department of Fish and Wildlife Resources (KDFWR) for the calendar year 2022 (CY22). This report refers to two periods of time called pre-transition and post-transition. October 2002 until January 2012 is considered pre-transition. During this time, the FILO program operated under the "Agreement Concerning In-Lieu Mitigation Fees between KDFWR and the U.S. Army Corps of Engineers" (Agreement). This Agreement established that the Wetland and Stream Mitigation Trust Fund within KDFWR may receive mitigation in lieu-fees from Department of Army permittees. In exchange, KDFWR would identify, assess, and with the approval from the Interagency Review Team (IRT) made up of: U.S Army Corps of Engineering (USACE), U.S. Environmental Protection Agency (USEPA), U.S. Fish and Wildlife Service (USFWS), Kentucky Division of Water (KDOW), KDFWR, and Kentucky State Historic Preservation Office (KYSHPO) implement stream and wetland restoration opportunities in Kentucky.

In January 2012, the Agreement was replaced to comply with the 2008 Mitigation Rule (USACE 2008) and the resulting document is referred to as the Instrument (USACE 2011). This "transition" from Agreement to Instrument separates pre-transition and post-transition. This is the tenth annual report since transitioning the program to comply with the 2008 Mitigation Rule. It is the fifth annual report under the most recent modification of the Instrument between the U.S. Army Corps of Engineers (USACE) and KDFWR (USACE 2018), which adds the Northern Kentucky Service Area. The report includes information required under the terms of the Instrument and additional information related to the program for activities in CY22. The report includes program activities in the Louisville, Nashville and Memphis USACE district offices.

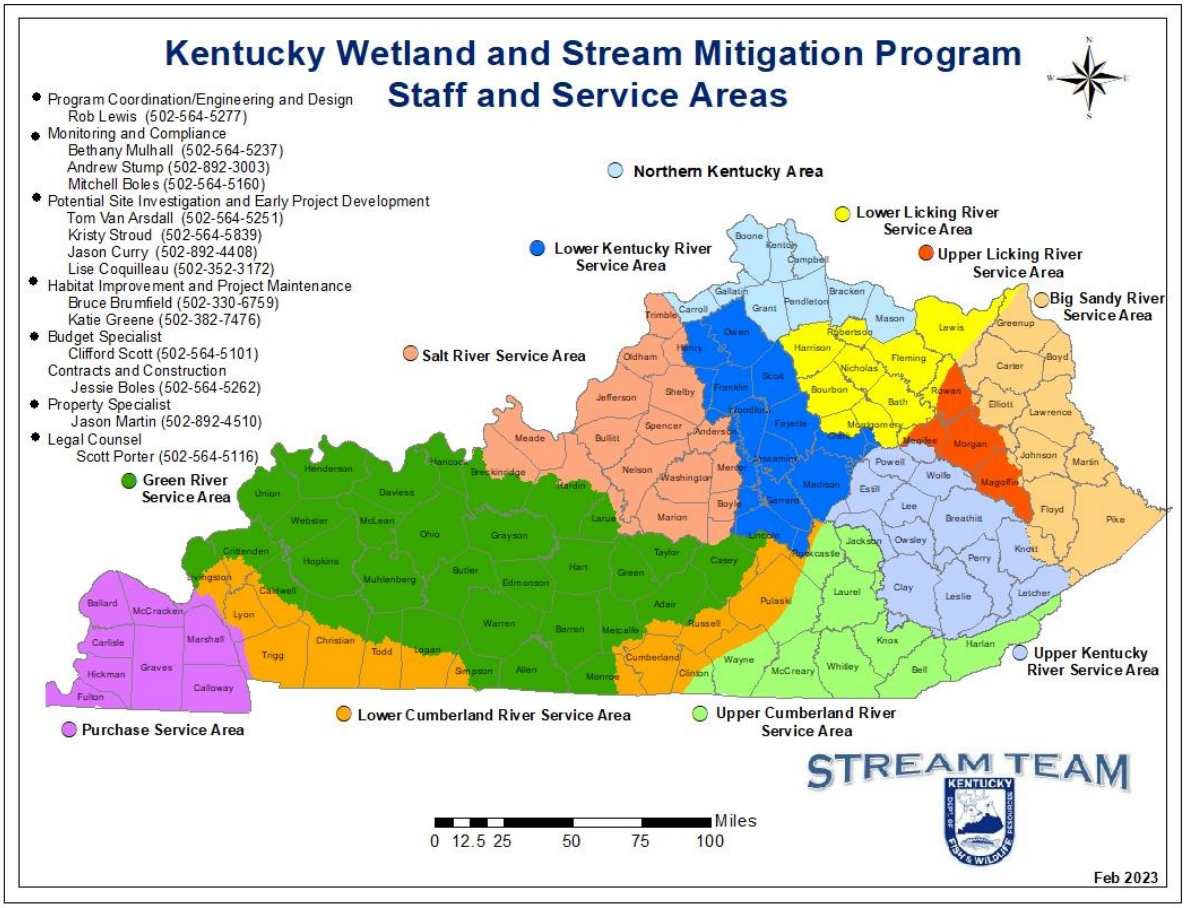
In July 2000, the Kentucky Legislature passed KRS 150.255, which established The Kentucky Wetland and Stream Mitigation Fund. The KDFWR Wetland and Stream Mitigation Program manages this fund to provide a consistent and successful approach to fulfill compensatory mitigation requirements associated with the Clean Water Act, Section 404 and Section 401, which are administered by the USACE and KDOW, respectively. A Section 404 permit from the USACE and a Section 401 Water Quality Certification from KDOW are needed for activities that cause the permanent loss of streams or wetlands. These permits require compensatory mitigation for the losses. The intent of the mitigation is to offset the permanent loss of stream and wetland habitat within a defined watershed or regional area.

There are two options defined in the 2008 mitigation Rule for 404 permit applicants to satisfy compensatory mitigation requirements by purchase of mitigation credits in-lieu of performing the mitigation themselves. The primary option, when available, is to purchase credit from a private mitigation bank. The secondary option is for a permit applicant to purchase credits from an in-lieu fee mitigation program. This method of mitigation is termed "in-lieu fee mitigation". The FILO program is a KDFWR sponsored in-lieu fee mitigation program that is available statewide, supported by sales of mitigation credits to Section 404 permit applicants to satisfy regulatory requirements. The monies generated by these in-lieu fees then are used to pay for

stream and wetland projects that conserve high quality aquatic habitat or improve degraded habitat in streams and wetlands throughout the Commonwealth.

The USACE has Instruments with two separate in-lieu fee programs (or sponsors) in Kentucky: Northern Kentucky University (NKU) and KDFWR (**Figure 1**). The Instruments between the sponsors and the USACE ensure that the mitigation completed is sufficient to compensate for losses, provides for permanent protection and long-term management, and adheres to applicable federal and state regulations and guidelines. By accepting in-lieu fee payments, the sponsor is assuming responsibility to provide compensatory mitigation pursuant to the terms of the Instrument established with the USACE. By purchasing credits from an in-lieu fee program, developers seeking USACE permits are relieved of mitigation obligations. The Instrument defines the role of an IRT pursuant to federal rules. The USEPA while a part of the IRT is not a signatory agency to the Instrument but can provide comments on individual mitigation projects during the USACE permit process. The function of the IRT is to review and comment on proposed projects, monitoring reports, remedial management measure, credit releases and instrument modification. Although there are four USACE districts in Kentucky (Memphis, Nashville, Huntington and Louisville), the Louisville District is the Lead District for communication with the sponsor and coordinating with the IRT on issues related to the Instrument and it has assumed jurisdiction for Section 404 regulatory projects in the Huntington District's region of Kentucky. The individual districts are responsible for specific issues with projects under their jurisdiction.

Figure 1: Kentucky Wetland and Stream Mitigation Program Staff and Service Areas



Mitigation projects are implemented on private or public lands and on lands owned or acquired by KDFWR; therefore, the success of the program is in part dependent on cooperation of landowners. Under additional restrictive selection criteria, the program also has the capability of preserving high quality aquatic resources through acquisition of properties with such resources and permanently protecting those areas through legal instruments and management. The Instrument requires that all KDFWR in-lieu fee projects be permanently protected through conservation easements, deed restrictions, or long-term management plans on public properties such as U.S. Forest Service National Forest lands. For private lands, this involves identifying landowners willing to cooperate with the sponsor to donate or sell a conservation easement or to sell the property in fee-simple.

Updated Agreement and Instrument Modifications

The Instrument went into effect on January 13, 2012 by Public Notice from the USACE. Its purpose was to comply with the 2008 Final Mitigation Rule (USACE 2008). The Instrument delineated Kentucky into 10 (ten) service areas, not including Northern Kentucky: Upper Kentucky River, Lower Kentucky River, Upper Cumberland River, Lower Cumberland River, Upper Licking River, Lower Licking River, Big Sandy River, Green River, Salt River and Jackson Purchase Service Areas. In early 2018, a Modification to the Instrument added a Northern Kentucky Service Area comprised of nine counties overlapping with NKU's Instrument. In-lieu fee program mitigation credits can now be purchased from either NKU or KDFWR in these nine counties (**Figure 1 and Figure 15**).

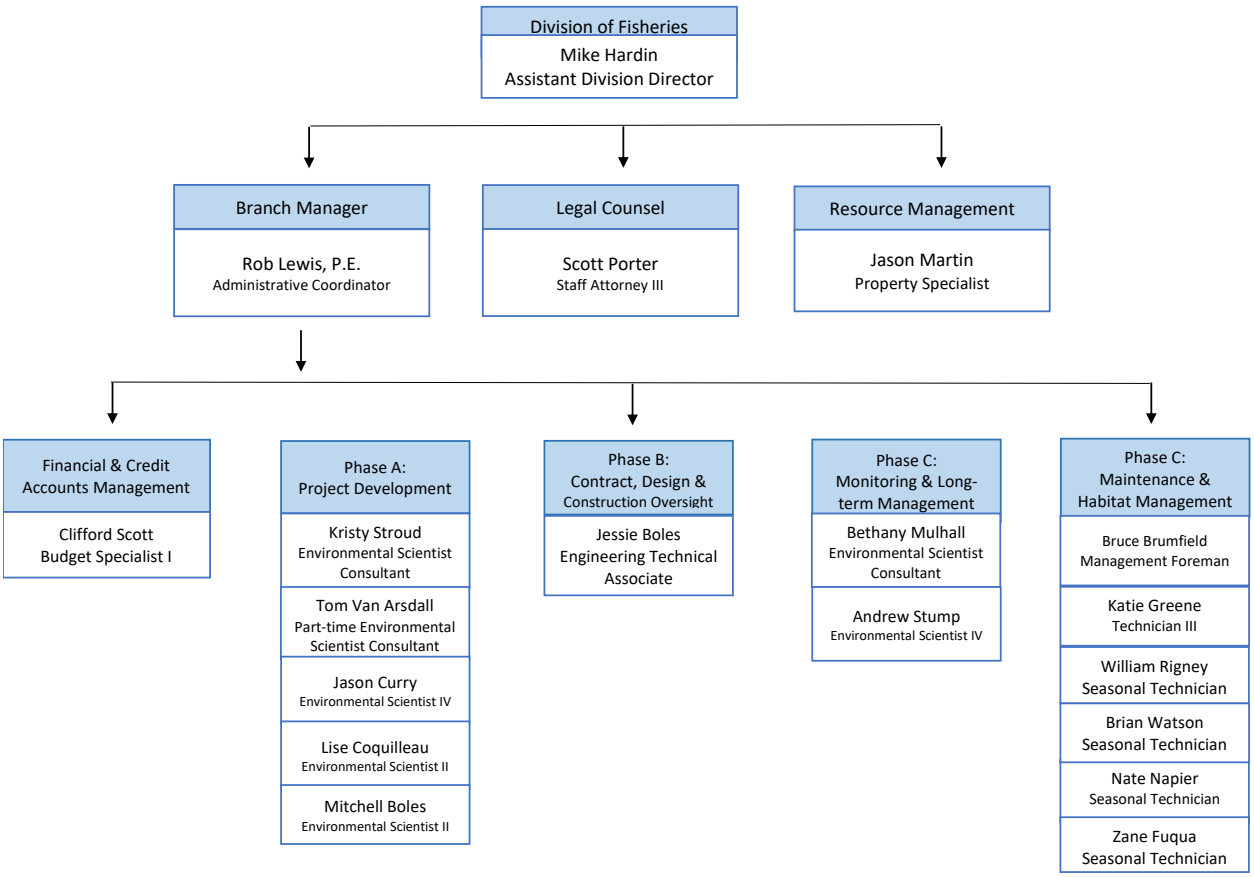
Prior to 2008 Mitigation Rule, impacts were handled on a linear foot or acreage basis and varied widely by USACE districts. The 2008 Mitigation Rule established "credit" as a transferable unit for handling impacts in mitigation. Credits are now defined per USACE district by functional parameters. In Kentucky, Ecological Integrity Units (EIUs) are mitigation credit units calculated by the Eastern Kentucky Stream Assessment Protocol (EKSAP) used in the Big Sandy River, Upper Licking River, Upper Kentucky River and Upper Cumberland River service areas. Adjusted Mitigation Units (AMUs) are mitigation credit units calculated by the Kentucky Assessment Protocol (KAP) used in the remaining service areas of the Commonwealth. Adjusted Mitigation Units for wetlands (also called AMUs) are used statewide.

Nineteen projects have been permitted since early 2012 under the USACE Letter of Permission (LOP) process. USACE adds each project to the Instrument as minor modifications (**Appendix E**).

FILO Staff and Assignments

Most of FILO workload is allocated functionally into program operation and project stages: Financial and Credit Account Management; Phase A – Project Development; Phase B – Design and Construction; Phase C – Monitoring and Long-Term Management (LTM). However, FILO staff often combine into teams to assist in any phase as needed. At the end CY21 FILO had a small turnover in staff which lead to new hires in CY22. Phase C saw the hire of Andrew Stump as an Environmental Scientist IV and Bruce Brumfield as the new Management Foreman. Katie Greene was hired as a Fish and Wildlife Technician III to Phase C as well as four seasonal technicians: Nate Napier, Zane Fuqua, Brian Watson and William Rigney. Jason Martin was hired as a Property Specialist for KDFWR with an objective to support FILO. In addition, Mitchell Boles and Lise Coquilleau were hired as Environmental Scientist IIs and are currently assisting Phase A and C as needed. The flowchart below depicts FILO's current organization:

Figure 2: FILO Staff Organization Chart



Landowner Contacts and Potential Project Site Visits

Potential project site visits made by FILO staff in CY22 are shown in **Table 1**; the table does not reflect the numerous landowner and realtor contacts that did not result in site visits. Consultants were utilized to augment FILO Phase A staff for potential project finding in the Big Sandy River, Upper Kentucky River, Upper Cumberland River and Green River service areas. The table only shows sites visited by FILO staff and does not depict the additional site identification effort of consultants.

Table 1. Initial Site Visits in CY22

Service Area	Site Name	County	Public or Private	Project Type	Land Protection
Big Sandy	Morgans Creek Wetland	Lawrence	Private	Wetland	Easement
	Muddygut Branch	Johnson	Private	Stream	Purchase
	Appalachian Groundswell	Elliott	Private	Stream	Purchase
	Adkins / Vansant	Elliott	Private	Stream	Purchase
Upper Kentucky	Red Lick Wetland	Estill	Private	Wetland	Purchase
	Frozen Creek	Breathitt	Private	Stream	Purchase
Upper Cumberland	Laurel Co. Wetland	Laurel	Private	Wetland	Purchase
	Marsh Creek	McCreary	Private	Wetland	Purchase
Lower Kentucky	Cave Creek	Fayette	Private	Wetland	Easement
	Brown Bottom	Owen	Public	Wetland	Easement
Northern Kentucky	Split Rock	Boone	Private	Wetland	Easement
	Fourmile	Campbell	Private	Wetland	Easement
	Stone Creek	Bracken	Private	Stream	Easement
	North Fork Licking River	Bracken	Private	Stream	Easement
Salt	Yellowbank WMA	Breckinridge	Public	Wetland	Easement
	Rolling Fork - Robinson	Nelson/Larue	Private	Stream	Easement
	Rolling Fork - Peake	Nelson/Larue	Private	Stream	Easement
	J.Boone Property	Bullit	Private	Stream	Easement
Green	Goose Creek Wetland	Casey	Private	Wetland	Purchase
	Carpentar Creek Wetland	Casey	Private	Wetland	Purchase

Credit Costs and Status

The Instrument, consistent with the 2008 Mitigation Rule, for in-lieu-fee programs has an allotment of credits available per service area for sale to permittees in advance of mitigation activities. Advanced credits are not the same as released credits and are not a goal or objective. All credit sales are confirmed with USACE prior to receipt confirmation. The quantity of advanced credits is determined by service area need and program capacity to perform over a period of many years. The Instrument established 240,000 advanced stream credits in each service area, except the Northern Kentucky Service Area, which established 100,000 advanced stream credits. In addition, 100 AMU advanced wetland credits were established in each service area except in the Green River and Jackson Purchase Service Areas where 200 wetland AMU advanced credits were provided. A minor instrument modification in CY22 increased the number of advanced stream credits in the Northern Kentucky Service Area by 200,000 and increased the number of advanced wetland credits in the Salt River Service Area by 100.

Cost per credit prices were not adjusted in CY20, nor CY21. The cost per credit for stream and wetland increased in all service areas in CY22 due to a significant inflation adjustment after more than two years of holding fees steady. (**Table 2**).

Table 2. Credit Costs ($)

Credit Costs ($)

Service Area	Stream		Wetland	
	Cost/Credit		Cost/AMU	
	Beginning CY2022	Ending CY2022	Beginning CY2022	Ending CY2022
Big Sandy (EIU)	820	919	61,500	78,000
Upper Licking (EIU)	750	1,072	61,500	78,000
Upper Kentucky (EIU)	870	930	61,500	78,000
Upper Cumberland (EIU)	880	1,183	61,500	78,000
Lower Licking (AMU)	350	490	61,500	78,000
Lower Kentucky (AMU)	330	395	61,500	78,000
Lower Cumberland (AMU)	415	528	61,500	78,000
Green (AMU)	400	549	61,500	78,000
Salt (AMU)	415	518	61,500	78,000
Jackson Purchase (AMU)	405	522	61,500	78,000
Northern Kentucky (AMU)	465	522	61,500	78,000

New rates effective 08/01/2022

In November 2014, credit sales were suspended in the Big Sandy River Service Area because of: 1) the difficulty in finding mitigation projects meeting criteria (i.e., sites without mineral rights, property title or owner issues, or water quality issues); 2) the 3-year timeframe for initiating mitigation projects from the time fees were received was not going to be met due to the paucity of mitigation sites without mineral issues; and 3) several large tracts of land involving thousands of potential mitigation credits that would have covered the obligation could not be developed further because of oil and gas interests. Considering these three factors, it was determined the

pace of finding successful projects in the Big Sandy River Service Area would not likely keep up with the pace of sales. Credit sales had not been resumed by the end of CY22.

In response to CY21 annual reporting status for wetland AMUs in Upper Cumberland River and Lower Cumberland River Service Areas, USACE Nashville District directed the FILO program to suspend wetland credit sales in those service areas, citing the age of sold credits and lack of projects in those areas. The Louisville and Nashville District agreed the FILO program should earmark $3,000,000 of reserve portions of FILO funds to augment project funds for acquiring and implementing wetland projects in service areas that had fallen behind schedule. In CY22 project sites were located and acquired in both the Upper Cumberland River and Lower Cumberland River Service Areas that will more than cover the current mitigation obligation.

In CY22, FILO sold 746 stream EIUs, 78,676 stream AMUs, and 86.1 wetland AMUs (**Table 3 and 3.1 Table 4 and 4.1**). **Table 3** and **3.1** show advanced credit balances for streams and Table 4 and 4.1 show advanced credit balances for wetlands in each service area. **Appendix A** presents individual credit sales, costs and balances for each service area.

Table 3. and 3.1. Advance Stream Credit Balances and CY22 Activity

Advance Credit Balances

Stream EIU Regions	Big Sandy	Upper Kentucky	Upper Licking	Upper Cumberland				Stream EIU Totals
Advance Credit Allocation	240,000	240,000	240,000	240,000				
CY2022 Beginning Credit Balance	204,374.66	205,327.37	226,107.40	229,446.89				
CY2022 Credits Sold	21.00	-	261.00	464.00				746.00
CY2022 Released Credits	-	-	-	-				
CY2022 Ending Advance Stream EIU Balance	204,353.66	205,327.37	225,846.40	228,982.89				

Stream AMU Regions	Lower Kentucky	Lower Licking	Lower Cumberland	Green	Salt	Jackson Purchase	Northern Kentucky	Stream AMU Totals
Advance Credit Allocation	240,000	240,000	240,000	240,000	240,000	240,000	300,000*	
CY2022 Beginning Credit Balance	218,266.80	205,968.93	174,762.59	178,350.94	110,432.96	231,160.51	200,000.00	
CY2022 Credits Sold	6,788.00	4,005.00	-	61,820.00	5,433.00	-	630.00	78,676.00
CY2022 Released Credits	4,216.00							4,216.00
CY2022 Ending Advance Stream AMU Balance	215,694.80	201,963.93	174,762.59	116,530.94	104,999.96	231,160.51	199,370.00	
*NKY Stream Advanced Credit Allocation increased by 200,000 03/24/2022								

Table 4. and 4.1. Advance Wetland Credit Balances and CY22 Activity

WETLAND AMUs	Big Sandy	Upper Kentucky	Lower Kentucky	Upper Licking	Lower Licking	Jackson Purchase
Advance Credit Allocation	100.000	100.000	100.000	100.000	100.000	200.000
CY2022 Beginning Credit Balance	93.439	73.940	85.268	85.780	95.020	188.580
CY2022 Credits Sold	-	-	2.400	6.400	1.500	-
CY2022 Released Credits	-	-	-	-	-	
CY2022 Ending Advance Wetland AMU Balance	93.439	73.940	82.868	79.380	93.520	188.580

WETLAND AMUs (con't)	Upper Cumberland	Lower Cumberland	Green	Salt	Northern Kentucky	Wetland AMU Totals
Advance Credit Allocation	100.000	100.000	200.000	200.000*	100.000	
CY2022 Beginning Credit Balance	80.159	75.992	137.512	118.437	64.900	
CY2022 Credits Sold	-	-	38.500	29.900	7.400	86.100
CY2022 Credits Withdrawn **	80.159	75.992	-	-	-	156.151
CY2022 Released Credits	-	-	-	-	-	-
CY2022 Ending Advance Wetland AMU Balance	-	-	99.012	88.537	57.500	
*Salt Wetland Advanced Credit Allocation increased by 100 03/24/2022						
** Wetland Credits Withdrawn by Nashville Corps District						

Table 4.1 has a row that **Tables 3**, **3.1**, and **4** do not. The reason for this is the mechanism by which Nashville USACE chose to account for suspension of sales in Upper and Lower Cumberland River Service Areas is by withdrawal of advanced credits.

Program Financial Status

In-lieu fees paid into the program are divided into three categories: Administrative, Reserve and Project. Project funds are available for existing and new projects in corresponding service areas. During CY22, credit sales took in $37.5M total receipts, representing $29.6M in project funds (**Table 5**). The Salt River Service Area and the Green River Service Area contributed the highest percentage of receipts (at 12% and 72 % respectively) totaling just over $31.3M. The Lower Kentucky River Service Area and the Lower Licking River Service Area contributed the second highest percentage of receipts (7% and 4% respectively). Though closed for sales, there is a 'receipt' shown for the Big Sandy River Service Area. This is a return of funds to the service area account from pre-instrument project that was completed under budget. The largest category of receipts came from development at 70% (**Table 6**). In-lieu-fee payments to FILO from mitigation impacts caused by 404-permitted activities including impact types and the amounts is included in (**Table 7, Figure 3**). Full or partial disclosure of records concerning administrative, reserve or project funds can be requested through the Freedom of Information Act (FOIA).

Table 5. CY22 Service Area Receipts and Project Funds ($)

CY2022 Service Area Receipts and Project Funds ($)

Service Area	CY2022 Total Receipts	CY2022 portion to Reserve Funds	CY2022 portion to Admin Funds	CY2022 portion to Project Funds	CY2022 Beginning Project Fund Balance S&W	CY2022 Ending Project Fund Balance S&W	CY2022 Service Area % of Receipts
Big Sandy	16916.29*	1,692	1,692	13,533	18,749,173	18,762,706	0%
Upper Kentucky	-	-	-	-	21,624,988	21,624,988	0%
Lower Kentucky	2,766,572	389,527	389,527	1,987,518	6,239,045	8,226,563	7%
Upper Cumberland	408,320	40,832	40,832	326,656	7,906,476	8,233,132	1%
Lower Cumberland	-	-	-	-	14,800,546	14,800,546	0%
Upper Licking	589,219	58,922	58,922	471,375	7,900,226	8,371,601	2%
Lower Licking	1,494,000	149,400	149,400	1,195,200	9,336,573	10,531,773	4%
Salt	4,392,683	514,165	514,165	3,364,354	32,942,125	36,306,478	12%
Green	27,095,750	2,709,575	2,709,575	21,676,600	15,077,691	36,754,291	72%
Jackson Purchase	-	-	-	-	3,087,071	3,087,071	0%
Northern Kentucky	807,060	102,609	121,059	583,392	30,314,072	30,897,464	2%
TOTALS	37,553,604	3,966,721	3,985,171	29,618,627	167,977,985	197,596,613	100%

*Returned funds from 'pre-Instrument' completed project

Table 6. FILO Receipts by Source - CY22

CY2022 Receipts by Source

Source	Receipts ($)	% of total
KY Transportation Cabinet	10,794,184	29%
Mining	408,320	1%
Development	26,315,981	70%
Other	52,035	0%
Total	**37,570,520**	**100%**

Figure 3. CY22 Receipts by Source

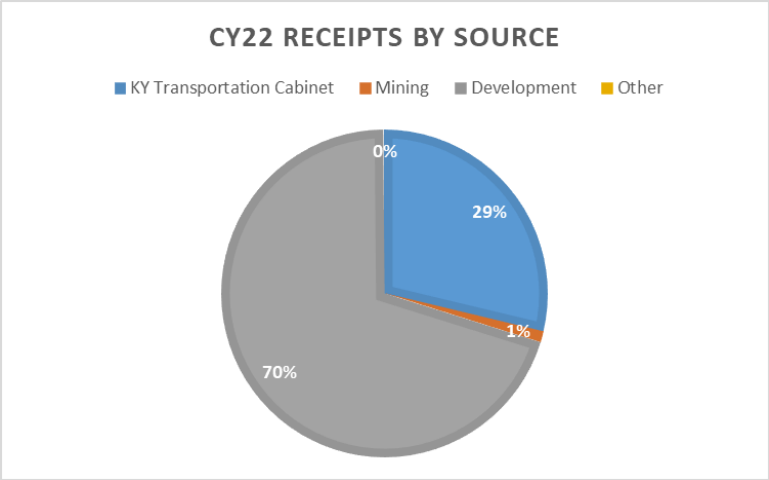


Table 7. FILO Receipts for Purchased Credits including Impact Types

Receipts - type of payment	Amount	Service Area	County	Stream / Wetland	Credits	Perennial Credits	Intermittent Credits	Ephemeral Credits	Wetland Credits
transportation	$ 6,812,400.00	GR	Henderson	S	17,031.0	434.0	11,204.0	5,393.0	
transportation	$ 2,101,400.00	LK	Madison	S	5,320.0	1,202.0	4,118.0		
transportation	$ 156,000.00	LK	Madison	W	2.0				2.0
transportation	$ 1,133,384.00	SR	Oldham	S	2,188.0	1,140.0	875.0	173.0	
transportation	$ 36,900.00	SR	Oldham	W	0.6				0.6
transportation	$ 105,000.00	UL	Menifee	S	140.0	140.0			
transportation	$ 55,500.00	UL	Magoffin	S	74.0		74.0		
transportation	$ 393,600.00	UL	Magoffin	W	6.4				6.4
development	$ 17,612,000.00	GR	Hardin	S	44,030.0	33,752.0	9,112.0	1,166.0	
development	$ 303,600.00	GR	Daviess	S	759.0		586.8	172.2	
development	$ 2,367,750.00	GR	Hardin	W	38.5				38.5
development	$ 258,192.00	LK	Franklin	S	782.0		782.0		
development	$ 226,380.00	LK	Henry	S	686.0		336.0	350.0	
development	$ 24,600.00	LK	Scott	W	0.4				0.4
development	$ 907,900.00	LL*	Boone*	S	2,594.0		2,594.0		
development	$ 165,550.00	LL*	Boone*	S	473.0			473.0	
development	$ 328,300.00	LL*	Kenton*	S	938.0		144.0	794.0	
development	$ 92,250.00	LL*	Boone*	W	1.5				1.5
development	$ 328,860.00	NK	Gallatin	S	630.0		535.0	95.0	
development	$ 36,900.00	NK	Boone	W	0.6				0.6
development	$ 252,150.00	NK	Campbell	W	4.1				4.1
development	$ 79,950.00	NK	Boone	W	1.3				1.3
development	$ 109,200.00	NK	Gallatin	W	1.4				1.4
development	$ 208,745.00	SR	Shelby	S	503.0			503.0	
development	$ 268,090.00	SR	Jefferson	S	646.0		646.0		
development	$ 659,020.00	SR	Jefferson	S	1,588.0	1,161.0	213.6	213.0	
development	$ 64,232.00	SR	Bullitt	S	124.0		124.0		
development	$ 183,372.00	SR	Bullitt	S	354.0		354.0		
development	$ 15,540.00	SR	Bullitt	S	30.0		30.0		
development	$ 30,750.00	SR	Marion	W	0.5				0.5
development	$ 867,150.00	SR	Jefferson	W	14.1				14.1
development	$ 455,100.00	SR	Shelby	W	7.4				7.4
development	$ 369,000.00	SR	Jefferson	W	6.0				6.0
development	$ 15,600.00	SR	Jefferson	W	0.2				0.2
development	$ 85,800.00	SR	Bullitt	W	1.1				1.1
mining	$ 408,320.00	UC	Bell	S	464.0		464.0		
other**	$ 16,916.29	BS	Boyd	S	21.0				
other**	$ 35,118.83	UL	Rowan	S	47.0				

* County and Service Area do not align, per USACE directive, fees applied to LL Service Area

**Returned funds from 'pre-Instrument' completed project

Project Fund Status

Table 8 shows: 1) project funds received for streams and wetlands in each of the eleven service areas post-transition through CY22; 2) funds currently allocated to "CP approved" projects; and 3) funds unallocated at the end of the year. CP approved projects include projects where the USACE (in consultation with the IRT) has approved the mitigation site, site protection plan, general mitigation approach, and has concurred with the project proposal with or without conditions to proceed to the preliminary design phase. This is not a "permit approval" as the USACE has not issued an authorization (likely in the form of a LOP) nor approved modification of the ILF Instrument. For purposes of understanding the balance of In-Lieu fee funds and project activity it is important to provide context for terms and accounting protocols internal to the state.

In-Lieu fee mitigation funds reside in the state treasury in a restricted account. This fund is named by KRS 150.255 as the Kentucky Wetland and Stream Fees-In-Lieu-Of Mitigation Fund, and is often referred to as the Mitigation Fund, or FILO Fund. Tracking mitigation funds from this account as they become dedicated to projects and used to fund mitigation activities generally follow this path: allocate funds (set aside/earmark/designate funds) upon USACE support of a CP project mitigation proposal, create a capital account for the project, move funds into individual mitigation project capital accounts as funds are needed for various project stages and contracts, spend funds as contracts are invoiced. In general, allocation means that a specified quantity of funds are being set aside in an amount that correlates with costs of securing site protection and completing an independently viable portion of a project. This ensures that funds are available for approved projects that are necessary to meet In-Lieu fee sales (mitigation obligations). Allocation does not mean funds are in a project capital account, and also does not mean that there are funds available to complete 100% of a project. Allocated funds are moved from the FILO Fund into the capital accounts which are used to track contract encumbrances, obligations and pay outs for property, design, construction, and other project costs.

The In-Lieu fee program, like all government agencies, operates within pre-determined budgets and budget authorities per fiscal year. In-Lieu fee mitigation projects are funded under a capital budget within a specified dollar amount of authority for a given fiscal year. The capital budget authority is set (sometimes long before mitigation projects are identified) in a 6-year plan. The In-Lieu fee program forecasts project costs for the 6-year plan that sets the amount of the capital budget authority needed to cover delivery costs of known, approved projects and new projects that have not yet been identified. The 6-year plan becomes less accurate the further out in time of the forecasted project costs. As a result, there have been times when the program had above average receipts, such as abnormally large receipts, and therefore, more mitigation projects than the capital budget authority that was forecasted. A question arises as, "How does the program keep projects moving if there is not enough capital budget authority to fully fund all at the full project cost?" The answer is, "The program funds projects in stages if or when needed to ensure project delivery is not halted because of lack of budget authority." For example, if there is not enough budget authority to fully fund several new projects then the program can spread funding across multiple projects by only allocating and budgeting enough funding for current project stages. Stated in terms of those project stages, the program can fully fund site protection to acquire an approved mitigation site, but only fund the portion of design and construction that

meets the funding obligation, and still have mitigation potential available on the same site for future In-Lieu fees to be utilized. This allows the program to fund the property acquisition and design phases of newer projects to get them started while older projects are funded to complete construction. In this way, the program keeps projects moving toward completion unimpeded by budget authorities. But it is important to note this when understanding "allocation" of funds. Allocation of funds for projects may not always equal the amount of funds budgeted into capital accounts because some projects may be funded partially. It is also important to note for large projects that have more mitigation potential available than the program is obligated to provide; those projects can be funded from the Reserve portion of the FILO Fund. The large projects funded from Reserve are sometimes broken into separate independent projects that are built at different times according to need and credit fulfillment obligations or other times are funded through design only, depending on USACE preference.

Table 8. Allocated and Unallocated Project Funds for Stream and Wetland by Service Area ($)

Allocated and Unallocated Project Funds for Stream and Wetland, by Service Area ($)

Basin	Stream				Wetland			
	Total Project Funds	Allocated	% of allocated	Unallocated	Project	Allocated	% of allocated	Unallocated
Big Sandy	18,610,565	13,582,631	73%	5,027,934	152,141	3,600	2%	148,541
Upper Kentucky	20,629,474	7,801,480	38%	12,827,994	995,513	193,136	19%	802,377
Lower Kentucky	7,626,734	6,814,137	89%	812,597	599,828	133,620	22%	466,208
Upper Cumberland	7,641,239	9,494,561	124%	(1,853,322)	591,893	0	0%	591,893
Lower Cumberland	14,139,604	15,251,914	108%	(1,112,310)	660,943	1,700,000	257%	(1,039,057)
Upper Licking	7,567,838	10,118,806	134%	(2,550,969)	803,764	2,158,928	269%	(1,355,165)
Lower Licking	10,254,474	9,317,500	91%	936,973	277,299	0	0%	277,299
Green	32,841,542	32,762,558	100%	78,984	3,912,749	3,186,537	81%	726,212
Salt	31,480,536	32,472,410	103%	(991,874)	4,825,942	4,288,348	89%	537,594
Jackson Purchase	2,603,282	114,310	4%	2,488,972	483,789	272,166	56%	211,623
Northern Kentucky	29,205,187	25,339,459	87%	3,865,728	1,692,278	305,427	18%	1,386,850
Total	**182,600,474**	**163,069,767**		**26,039,181[a] (6,508,474)[b]**	**14,996,139**	**12,241,763**		**5,148,597[a] (2,394,222)[b]**

[a]Total of Unallocated funds

[b]Total of over-allocated funds (in CY22 covered by Reserve funds)

Due to intricacies like those stated above, the FILO Fund cash balance and the Allocated funds are not necessarily good indicators for how the program is meeting project level or programmatic level compliance metrics. It is necessary to understand the complexities and instance specific factors in order to determine compliance status. Moreover, a far better determination of compliance status could be learned by looking at the estimates of credit production potential in CP approved projects. However, as a 'snapshot' in time, or with several such snapshots over time, Allocated funds can be useful to understand the amount of funds that the program could spend in a relatively short amount of time, because allocated funds are readily available for existing contracts, latter stages of existing contracts and contracts expected.

As of December 31, 2022, approximately $163M is allocated to stream projects and roughly $26M of stream project money is un-allocated. Most of the un-allocated funds reside in the Upper Kentucky River, Northern Kentucky, and Big Sandy River Service Areas. Approximately $6.5M is over-allocated in the Upper Cumberland, Lower Cumberland, Upper Licking and Salt River Service Areas. The Reserve Fund (defined herein) can be used to cover over-allocation. Over $14M in project funds has been collected for wetland mitigation since the transition (**Table 8**), with about $12.2M allocated, mostly in the Salt River Service Area with $4.2M allocated for projects. Approximately $5.1M of wetland funds is unallocated, mostly in the Northern Kentucky Service Area.

Reserve Fund

Pursuant to the Instrument, a portion of the FILO program fund, called the Reserve Fund is established as additional financial assurances to fund contingency actions, long-term management, and other uses approved by USACE. The Reserve Fund also functions as an endowment and insurance to cover shortfalls in meeting credit obligations, contingency needs, and maintenance costs. It can pay for approved additional mitigation projects, permanent protection activities, minor repair actions and other activities not funded though service area or administrative accounts. Contributions to the Reserve Fund come from a percentage of credit sales, currently set at 15% of credit sales, and a percentage of accumulated interest, currently set at 85% of accumulated interest. A non-wasting amount of $3M was designated for the Reserve Fund. The balance of funds above the non-wasting limit is referred to as the "Active Reserve". These funds can also be used for remedial actions or additional projects that generate a surplus of credits, or credits in advance of mitigation sales obligations subject to approval by the Corps of Engineers.

The contribution to the Reserve Fund during CY22 from credit sales was $3.9M. The total Reserve Fund cash balance at the end of CY22 was $34.8M, which results in an active Reserve Fund of $21.1M when accounting for reserve allocations after $3M non-wasting $1.8M for Full Delivery projects, and $8.9M for covering project fund over-allocations. **Table 9** gives a full accounting of the Reserve Fund, including those funds currently projected as needed to cover approved actions in nine service areas due to an over-allocation of project funds. The over-allocation of project funds potentially generates mitigation credits with completed projects 'on the ground' in advance of sales which helps to address the 3-year Mitigation Rule timeframe requirement or to generate additional mitigation credits that provide insurance against shortfalls that could be incurred with other mitigation projects in the same service area. Additional receipts received prior to initiation of a mitigation project will be used instead of the Reserve Fund, as use of the Reserve Fund would then be unnecessary. These additional receipts will reduce, if not remove, the need to 'cover' these over-allocated service areas with the Reserve Fund. In some cases, project receipts could also be used to refund the Reserve Fund, depending on the timing and scale of receipts and the needs in a service area.

Each year, the program seeds a long-term management and maintenance account with funds from the Reserve Fund to pay for management and minor remedial actions (**Table 9**). This allows the program to be responsive to the USACE and IRT directives in taking necessary remedial or maintenance actions in addition to undertaking scheduled long-term management tasks.

Table 9. CY22 Reserve Fund Activity and Balance ($)

CY2022 Reserve Balance and Activity ($)

Beginning CY2022 Reserve Cash Balance	**35,429,879**	
% of CY2022 stream receipts	3,411,121	Sales and closed/transitioned funds
% of CY2022 wetland receipts	555,600	Sales and closed/transitioned funds
CY2022 Interest Distribution	(3,571,290)	Interest distribution - 85% Eff 08/01/2022
Salt Lick Repair (C9Y6)	(453,710)	AMP Repairs
East Fork Indian (C40N)	21,351	Return of unused Reserve Funds
Hatchery Creek (C5EF)	83,771	Return of unused Reserve Funds
Myer's Station Repair (CAE2)	(50,000)	AMP Repairs
Goose Creek Repair (CASE)	(150,000)	AMP Repairs
Slabcamp Br (C9Q3)	(398,695)	Property Acquisition
Ending CY2022 Reserve Cash Balance	**34,878,027**	
CY2022 project fund reserve coverage	(1,853,322)	Upper Cumberland Stream allocation
CY2022 project fund reserve coverage	(1,112,310)	Lower Cumberland Stream allocation
CY2022 project fund reserve coverage	(991,874)	Salt River Stream allocation
CY2022 project fund reserve coverage	(2,550,969)	Upper Licking Stream allocation
CY2022 project fund reserve coverage	(1,039,057)	Lower Cumberland Wetland allocation
CY2022 project fund reserve coverage	(1,355,165)	Upper Licking Wetland allocation
Meadowland Full Delivery	(962,500)	Northern KY FD Contractual Reserve obligation
Big Lick Full Delivery	(840,000)	Salt River FD Contractual Reserve obligation
Ending CY2022 Reserve obligations	**(10,705,196)**	*Subject to USACE Approval
Reserve Balance after obligations	24,172,831	
Non-Wasting Reserve	3,000,000	
Ending CY2022 Active Reserve Balance	**21,172,831**	

Administrative Fund

The Administrative Fund is used for expenses associated with activities to operate the program and to identify new projects. Such activities include feasibility studies, consultant contracts for early phase project development, outreach and property development, staff salaries, equipment, and additional indirect expenses such as travel and training. The Administrative Fund balance entering CY22 was $12,980,277. During CY22, $3,985,171 was added to the Administrative Fund from credit sales. The percentage of administrative fund portion of the fee rate increased in CY22 to 15%. This was necessary to maintain the administrative fund near its previous balance. This is necessary to accommodate an unanticipated influx of In-Lieu fees which increases the obligation to find new mitigation sites with FILO staff and via consultant contracts, as well as an increase in programmatic obligations associated with more actions required per project such as site prep and monitoring, and also a special programmatic effort to develop and perform an After-Action Review initially requested by USACE in 2021. Maintaining the administrative fund balance at its current level allows the program to ensure multiple years of staffing viability to meet regulatory obligations for current projects in case funds decline in future years. The CY22

total annual Operating Expenditures equaled $1,579,978. **Table 10** details the use of the Administrative Fund during CY22, leaving a year-end balance of $11,634,262.

Table 10. CY22 Administrative Fund Activity and Balance ($)

CY2022 Administrative Fund Activity and Balance ($)		
Beginning CY2022 Administrative Cash Balance	**12,980,277**	
% of CY2022 stream receipts	3,411,121	Credit sales and closed/transitioned funds
% of CY2022 wetland receipts	574,050	Credit sales and closed/transitioned funds
CY2022 Interest Distribution	(392,883)	Interest distribution - 15%
CY2022 operating expenditures	(1,579,978)	Payroll and operations cost
CY2022 Capital Fund Activity	(1,074,575)	Administrative Funded Capital Accounts
Ending CY2022 Administrative Cash Balance	**13,918,012**	
Meadowland Full Delivery (Northern Kentucky)	1,443,750	Northern KY FD Contractual Administrative obligation
Big Lick Full Delivery (Salt River)	840,000	Salt River FD Contractual Administrative obligation
Total FD Administrative Fund Obligation	**2,283,750**	
Ending CY2022 Active Administrative Balance	**11,634,262**	

Mitigation of Impacts

Prior to the 2008 Mitigation Rule fully taking effect with the Instrument in early 2012, it was not possible to relate mitigation to impacts caused by 404-permitted activities because in-lieu fee payments to FILO had little documentation regarding the quantity, quality, and flow regime of stream impacts. This was especially true during the first few years of the in-lieu fee program. It was assumed that impacts and mitigation occurred on similar stream flow types, resulting in similar linear feet affected. This information (or lack thereof) is not 'lost' information but a result of inconsistencies in regulatory tracking unrelated to FILO program actions. Thus, the pre-transition programmatic success was based on cost per linear foot that was established by the USACE as a "base-rate" for steam and wetland impacts. That was then used in a formula by the USACE during the permitting process to determine a final in-lieu fee payment amount. The program did not have access to permit applicant information regarding impact types and amounts. The available data could track only the amount of in-lieu fees received and the timing of the allocation of those funds to mitigation projects. With the implementation of the Instrument and the conversion of unallocated funds to credits, it is now possible to compare impacts (Advance Credits sold by FILO) to mitigation (Advance Credits fulfilled by FILO) for projects that began (approved by the IRT) post-transition. This report contains projects and actions pre- and post-transition, so not all projects and action relate directly to Mitigation Rule era projects, credits and program compliance.

Actions Taken by Interagency Review Team

Seven conceptual plans (CP) were submitted and four virtual IRT site visit presentations were conducted in CY22 (**Table 11**). The IRT had the option of choosing to see the sites in person per Covid-19 guidance and three of those sites were seen in person in CY22 with two more submitted but not scheduled until early CY23. Five projects were conceptually approved by the end of CY22 with two more pending approvals subject to additional information. Projects approved in the conceptual phase must eventually meet criteria for site protection in order to proceed to the mitigation plan phase.

Table 11. CY22 Conceptual Plans Submitted, Actions of Interagency Review Team for Newly Proposed Projects, Subsequent Activity

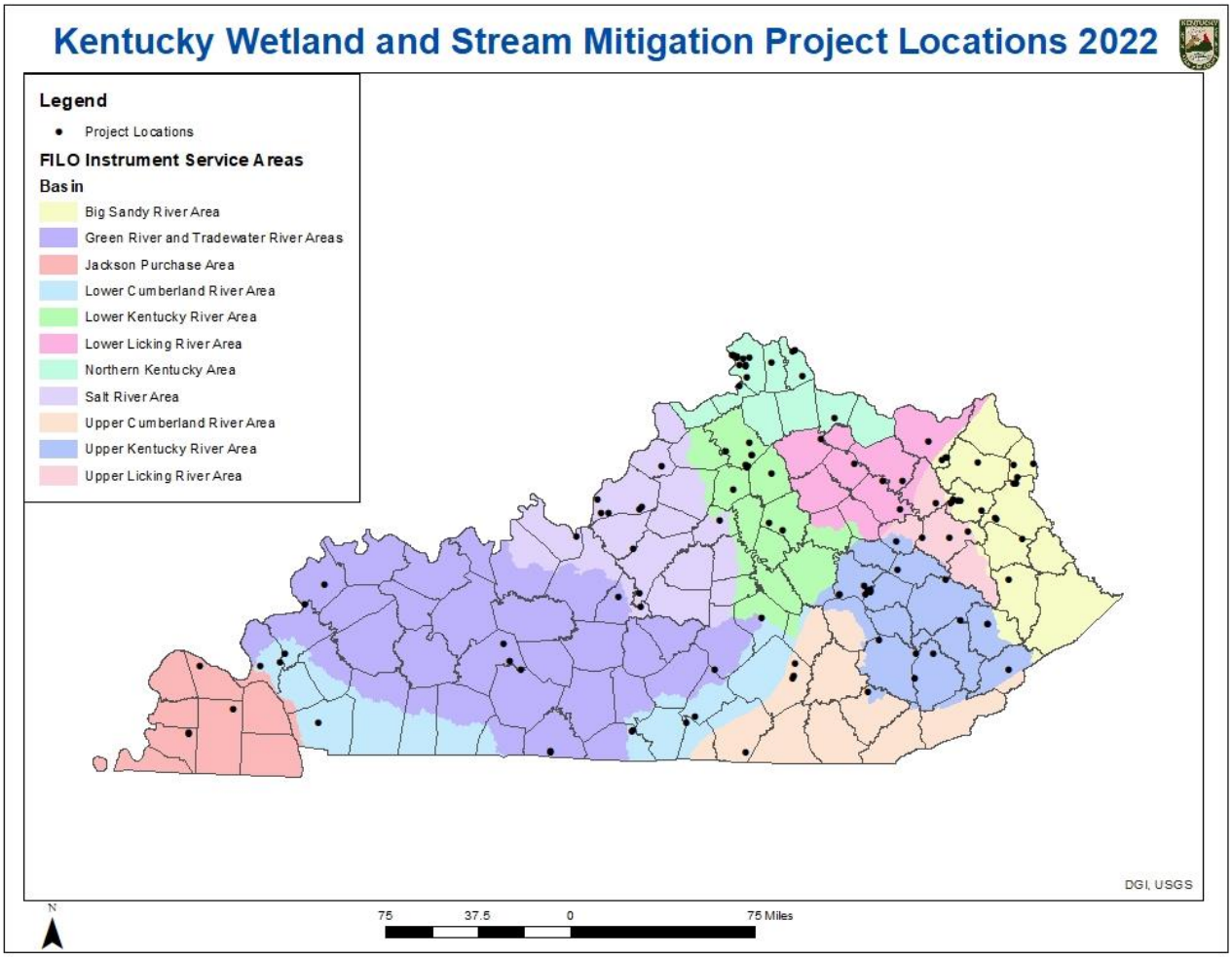
Project	Service Area	USACE District	County	Type	CP Submitted	Virtual Presentation	IRT Site Visit	Status
Muddygut Branch	Big Sandy	Louisville	Johnson	Stream	Dec. 2022	tba 2023	Mar. 2023	Pending
Adkins / Vansant	Big Sandy	Louisville	Elliott	Stream	Sept. 2022	Nov. 2022	Nov. 2022	CP Approved
Frozen Creek	Upper Kentucky	Louisville	Breathitt	Stream	Mar. 2022	Jun. 2022	tba	CP Approved
Marsh Creek	Upper Cumberland	Nashville	McCreary	Stream/ Wetland	Oct. 2022	Dec. 2022	Dec. 2022	CP Approved
Brown Bottom	Lower Kentucky	Louisville	Owen	Wetland	Sept. 2022	Nov. 2022	Nov. 2022	CP Approved
Fourmile Creek	Northern Kentucky	Louisville	Campbell	Wetland	Nov. 2022	Jan. 2023	Jan. 2023	Pending
Ferguson Creek	Lower Cumberland	Nashville	Livingston	Stream/ Wetland	Jan. 2022	NA	Mar. 2022	CP Approved

Project Statistics and Status

The IRT has approved 159 projects over the FILO program's 20-year history (2002-2022). Of those, 99 projects have been completed or are in various stages of development (**Figure 4; Tables 12-22**). The IRT has approved 61 projects since the FILO program's inception that were not continued because property issues such mineral rights or title concerns, high cost, landowner risk concerns, or other issues. Expenses associated with projects that begin development but not completely pursued are absorbed by administrative or reserve funds, as appropriate. Terminated or shelved projects do not result in less mitigation obligation and have not reduced available project funding. (**Tables 12-22**).

Project status narratives are organized by service area and then by project alphabetically. Throughout the project narratives, the term 'FILO' is used generally to include FILO staff, contracted consultants, and contractors. Maps are included and show project locations and status. A status of "Approved" on the maps indicates the project has received IRT CP approval while a status of "Released" indicates a project has been formally released from active monitoring to the LTM phase.

Figure 4. Kentucky Wetland and Stream Mitigation Program CY22 Statewide Project Map



Big Sandy River Service Area – Active Project Status

There are ten active projects in this service area and ten in the LTM phase. These projects fall within the USACE Louisville District and EKSAP region, which utilizes the EIU credit system (**Figure 5, Table 12**).

Bolts Fork, Boyd County: FILO submitted the Year 5 monitoring report in December 2018. Invasive species management occurred throughout the monitoring period and targeted multiflora rose, Johnson grass, autumn olive, and black alder. A bank repair was attempted in August 2018 at the upstream end of the project on the right descending bank. A "lighter-touch" approach was used with the intent to maximize the vegetative component in that area. Unfortunately, this effort was unsuccessful, and a large rain event damaged the area before vegetation could establish. Efforts to repair the area again with more aggressive techniques were completed in 2021 via a Design/Build Contract. Bank stabilization techniques including rock toe repair were implemented with temporary seeding and straw following. KDFWR staff installed permanent vegetation (live stakes, bare root trees, container trees, and native seed) in early 2022. A report documenting this effort was submitted in December 2022. The IRT advised that a follow-up site visit is unwarranted, but photo monitoring will continue.

Laurel Creek Gorge #2 (Green-Johnson tracts), Elliot County: The properties are part of the Ed Mabry-Laurel Gorge WMA. They have been combined into one design-build project along with other properties (Smith Property and Mart Whitt Fork) purchased adjacent to the WMA. In 2022, FILO finished construction and planted the project with native vegetation.

Mart Whitt Fork, Elliot County: The property is part of the Ed Mabry-Laurel Gorge WMA. It has been combined with other properties (Smith Property and Laurel Creek Gorge #2) purchased adjacent to the WMA into one design-build project. In 2021, FILO started construction. In 2022, FILO finished constructing and planting the project.

Mart Whitt Fork II, Elliot County: Approved by the IRT in 2020, this property adjoins the Mart Whitt Fork project which is part of the Laurel Creek Gorge WMA. Currently, acquisition agreements are still being resolved in 2022.

Old Trace Creek, Lewis County: Approved in 2013, KDFWR purchased the property in March 2014. The design-build contract started in 2015 and construction began in 2017. Construction and planting were completed in early 2018, commencing the first year of monitoring. FILO submitted the Year 4 monitoring report in December 2021. The Year 5 monitoring report was submitted in December 2022. There are some project deficiencies which need further investigation. The KDFWR plans to review and create a plan to address deficiencies in 2023.

Smith Property, Elliot County: The property is part of the Ed Mabry-Laurel Gorge WMA. It has been combined with other properties (Mart Whitt Fork and Laurel Creek Gorge #2) purchased adjacent to the WMA into one design-build project. In 2022, FILO finished construction and planted the site with native vegetation.

Staggs Branch, Lewis County: In 2020, FILO purchased the 440-acre property. In 2021, FILO submitted a Phase 1 Archaeology Report and Cultural Resources Report for Section 106 of the National Historic Preservation Act, worked on a Biological Assessment for Section 7 of the Endangered Species Act, and conducted the Preliminary Design/JD and Assessment Verification Meetings. In 2022, FILO submitted the Biological Assessment for Section 7 of the Endangered Species Act and conducted a follow-up Preliminary Design Review Meeting.

Staggs Branch II, Lewis County: Approved in 2019, the property is roughly 450 acres and adjoins the upstream portion of Staggs Branch encompassing over 95% of the upstream watershed. The property consists of two separate properties. One property owner declined our offer to purchase the property and is listed as terminated in **Table 12**. The second landowner accepted the offer, this property will be absorbed into Staggs Branch project. This will be condensed in the Mitigation Plan.

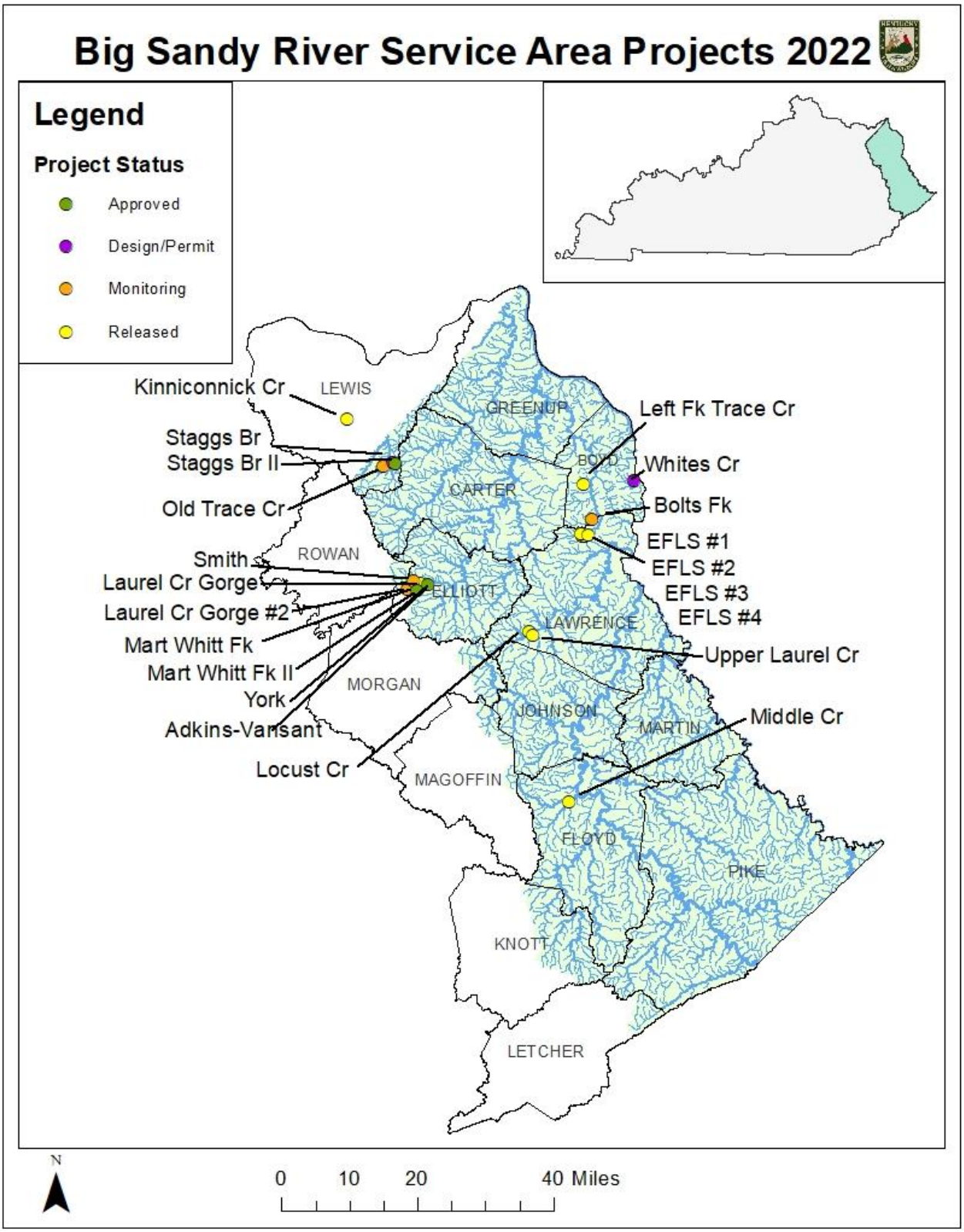
Whites Creek, Boyd County: In 2016, the Floodplain permit was received and in 2017, the Mitigation Plan was completed. In 2018, FILO received the 401 WQC. In 2019 and 2020, FILO worked towards finalizing the easement. In 2021, FILO finalized the easement and received a 404 permit. In 2022, FILO worked on design and bid documents to bid construction in 2023.

York Property, Elliot County: FILO acquired the property in 2021. The 55 additional acres adjoins the southeast portion of Ed Mabry-Laurel Gorge WMA and will help provide a new, safer public access point to the remote WMA. In 2022, FILO started surveys for the Biological Assessment for Section 7 of the Endangered Species Act and the Phase 1 Archaeological Report and the Cultural Resources Report for Section 106 of the National Historic Preservation Act.

Table 12. Project Status in the Big Sandy River Service Area

Count	Project	Status	County	USACE Distrct	404 Permit #
1	Staggs Br	Design/Permit	Lewis	Louisville	LRL-2016-153-pgj
2	Staggs Br II	CP Approved	Lewis	Louisville	LRL-2019-00436
3	York	CP Approved	Elliott	Louisville	LRL-2013-1012-pgj
4	Mart Whitt II	CP Approved	Elliott	Louisville	LRL-2020-00578-pgj
5	Laurel Cr Gorge #2	Monitoring	Elliott	Louisville	LRL-2012-478-pgj
6	Mart Whitt Fk	Monitoring	Elliott	Louisville	LRL-2013-598-pgj
7	Smith	Monitoring	Elliott	Louisville	LRL-2013-1013-pgj
8	Whites Cr	Design/Permit	Boyd	Louisville	LRL-2012-634-pgj
9	Bolts Fk	Final Release Pending	Boyd	Louisville	LRL-2010-698-pgj
10	Old Trace Cr	Monitoring - YR 5	Lewis	Louisville	LRL-2013-336-pgj
11	EFLS #1	Released - Long Term Management	Lawrence	Louisville	200401120
12	EFLS #2	Released - Long Term Management	Lawrence	Louisville	LRL-2009-332-pgj
13	EFLS #3	Released - Long Term Management	Lawrence	Louisville	LRL-2008-1082-pgj
14	EFLS #4	Released - Long Term Management	Lawrence	Louisville	LRL-2009-123-pgj
15	Kinniconnick Cr	Released - Long Term Management	Lewis	Louisville	LRL-2007-409-pgj
16	Laurel Cr Gorge	Released - Long Term Management	Elliott	Louisville	-
17	Left Fk Trace Cr	Released - Long Term Management	Boyd	Louisville	2006-00160
18	Locust Cr	Released - Long Term Management	Lawrence	Louisville	LRL-2008-1249-pgj
19	Middle Cr	Released - Long Term Management	Floyd	Louisville	LRL-2006-1256-pgj
20	Upper Laurel Cr	Released - Long Term Management	Lawrence	Louisville	200500901
1	Brushy Cr	Approved - Terminated	Greenup	Louisville	200400931
2	EFLS #5	Approved - Terminated	Lawrence	Louisville	LRL-2011-456-pgj
3	Ison Creek	Approved - Terminated	Elliott	Louisville	LRL-2013-222-pgj
4	Laurel Cr Tributary	Approved - Terminated	Elliott	Louisville	-
5	Laurel Tribs - Rowe Flats	Approved - Terminated	Elliott	Louisville	LRL-2013-770-pgj
6	Schultz Creek	Approved - Terminated	Greenup	Louisville	2009-806
7	Lovelace Fork	Approved - Terminated	Elliott	Louisville	LRL-2015-1022-pgj
8	Laurel Gorge - Howard Tract	Approved - Terminated	Elliott	Louisville	LRL-2014-276-pgj
9	White Oak Creek	Approved - Terminated	Greenup	Louisville	LRL-2012-787-pgj
10	Hitchins	Approved - Terminated	Carter	Louisville	LRL-2016-374-pgj
11	Barrett Creek	Approved - Terminated	Carter	Louisville	LRL-2012-635
12	Clifty Cr	Approved - Terminated	Elliott	Louisville	LRL-2013-867-pgj
13	Ben Willim Branch	Approved - Terminated	Lewis	Louisville	-
14	Keys Creek	Approved - Terminated	Boyd	Louisville	-
15	Pigeon Roost	Approved - Terminated	Boyd	Louisville	LRL-2012-26-pgj
16	Flutylick Branch	Approved - Terminated	Martin	Louisville	-
17	Buffalo Cr	Approved - Terminated	Johnson	Louisville	-
18	Cat Fork	Approved - Terminated	Lawrence	Louisville	LRL-2012-132-pgj
19	Stan Br	Approved - Terminated	Carter	Louisville	LRL-2016-374-pgj
20	Pleas Creek	Approved - Terminated	Lawrence	Louisville	LRL-2019-01050-pgj
21	Staggs Br II	Approved - Terminated	Lewis	Louisville	LRL-2019-00436
22	Grassy Cr	Approved - Terminated	Carter	Louisville	LRL-2019-00559-pgj

Figure 5. Project Status in the Big Sandy River Service Area



Upper Cumberland River Service Area – Active Project Status

There are three active projects in this service area and two in the LTM phase. These projects are within the USACE Nashville District and the EKSAP region, which utilizes the EIU credit system (**Figure 6, Table 13**).

Burnett Branch, Wayne and McCreary Counties: FILO partnered with the KDOW Wild Rivers program to acquire the property for preservation and restoration. In 2015, the mineral rights were acquired on an initially excluded portion of the property. In 2016, FILO reassessed the entire property according to the Nashville USACE's new stream assessment protocol. In 2017, the property's deed was amended to include restrictions with language suitable to USACE. In 2018, the Mitigation Plan was completed, and the project was put on public notice in preparation for the 401 WQC. In 2019, FILO submitted a Phase 2 Archaeological Survey Report for Section 106 of the National Historic Preservation Act and a Biological Assessment for Section 7 of the Endangered Species Act. In 2020, FILO received concurrence for Section 106. Some preparation for native grassland conversion was implemented in conjunction with KY Nature Preserves (KNP) staff in 2021 and 2022. The KDFWR entered into a Memorandum of Agreement (MOA) with KNP for invasive species treatment and native grass conversion. This work was conducted in 2022 and will continue until June 2023.

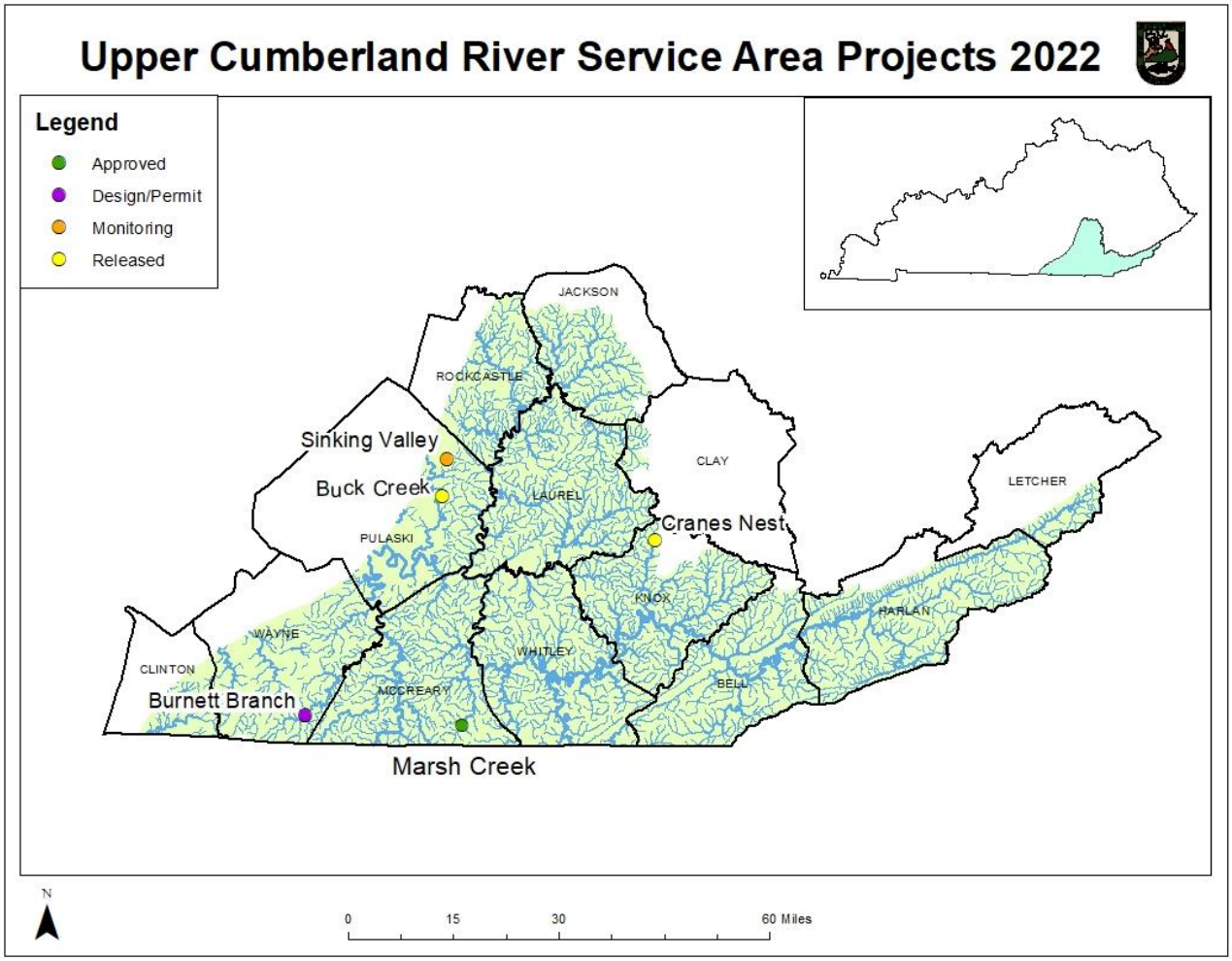
Sinking Valley, Pulaski County: The Mitigation Plan for preservation was accepted in December 2013. This project has bi-annual monitoring requirements for 10 years with the most recent report submittal in 2021 (Year 7 of 10). KDFWR staff will perform the prescribed monitoring for 2023 and will submit the report (2023; Year 9 of 10) in December 2023.

Marsh Creek, McCreary County: IRT approved in 2022, this project was presented as part of a Full Delivery contract with Resource Environmental Solutions, LLC (RES). It is expected to generate 1,109 stream credits and 25 wetland credits and will be permanently protected via a third-party site protection instrument.

Table 13. Project Status in the Upper Cumberland River Service Area

Count	Project	Status	County	USACE District	404 Permit #
1	Marsh Creek	CP Approved	McCreary	Nashville	LRN-2022-00766
2	Burnett Br	Design/Permit	Wayne McCreary	Nashville	LRN-2013-00116
3	Cranes Nest	Released - Long Term Management	Knox	Nashville	2009-01424
4	Sinking Valley	Monitoring - YR 9 (of 10)	Pulaski	Nashville	LRN-2012-00326
5	Buck Cr - preservation	Released - Long Term Management	Pulaski	Nashville	NA
1	Steele Branch	Approved - Terminated	Wayne McCreary	Nashville	LRN-2012-01244
2	Mulbery Cr	Approved - Terminated	Whitley	Nashville	LRN-2016-00783
3	Lonesome Cr	Approved - Terminated	Wayne	Nashville	LRN-2018-00488

Figure 6. Project Status in the Upper Cumberland River Service Area



Lower Cumberland River Service Area – Active Project Status

There are four active projects in this service area and two in the LTM phase. These projects are within the USACE Nashville District and the KAP region, which utilizes the AMU credit system. This service area has two distinct geographic areas in Kentucky, one in Western Kentucky and one in south-central Kentucky (**Figure 7, Table 14**).

Blue Spring Creek, Trigg County: The project is entirely within Lake Barkley State Resort Park with a substantial part on the park's golf course. In 2020, FILO started construction. In 2022, construction continued.

Hatchery Creek, Russell County: Construction began in August 2014 with final project completion in early 2016. FILO submitted the Year 5 monitoring report in 2020. A virtual compliance visit was held with the IRT in November 2021 to discuss project release options. A final decision is pending. Long-term management actions continue annually on site.

Mud Camp II, Cumberland County: Mud Camp I and III were IRT approved projects but later terminated due to landowners. Mud Camp II is roughly 800 acres and was acquired by KDFWR in 2021. In 2022, FILO started designing the project, conducted surveys for the Biological Assessment for Section 7 of the Endangered Species Act and the Phase 1 Archaeological Report and the Cultural Resources Report for Section 106 of the National Historic Preservation Act.

Crow Creek, Clinton County: Approved by the IRT in 2020, Crow Creek is 890 acres with Cumberland River frontage. The property was acquired by KDFWR in 2021. In 2022, FILO started designing the project, conducted surveys for the Biological Assessment for Section 7 of the Endangered Species Act and the Phase 1 Archaeological Report and the Cultural Resources Report for Section 106 of the National Historic Preservation Act.

Ferguson Creek, Livingston County: This project was approved in 2021, and FILO acquired the property in late 2022.

Figure 7. Project Status in the Lower Cumberland River Service Area

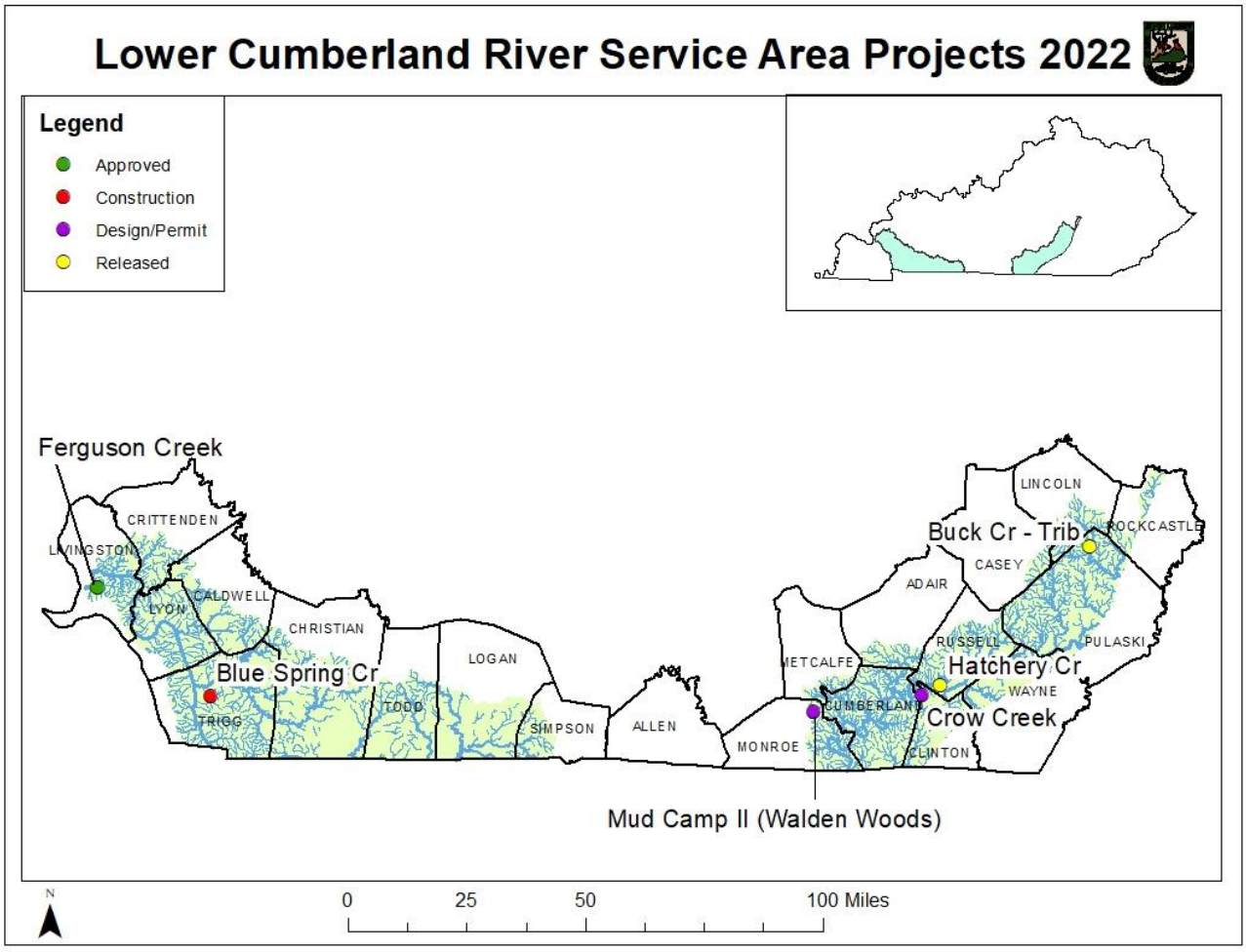


Table 14. Project Status in the Lower Cumberland River Service Area

Count	Project	Status	County	USACE Distrct	404 Permit #
1	Ferguson Creek Wetland	CP Approved	Livingston	Nashville	LRN-2018-00128
2	Crow Creek	Design/Permit	Clinton	Nashville	LRN-2020-00539
3	Mud Camp II	Design/Permit	Cumberland	Nashville	LRN-2020-00540
4	Blue Spring Cr	Construction	Trigg	Nashville	LRN-2013-00776
5	Hatchery Cr	Release Pending	Russell	Nashville	LRN-2010-00444
6	Buck Cr - Trib	Released - Long Term Management	Pulaski	Nashville	LRN-2006-2255
1	Puncheon Cr	Approved - Terminated	Pulaski	Nashville	-
2	Bear Den Hollow	Approved - Terminated	Pulaski	Nashville	LRN-2016-00784
3	Doan Springs	Approved - Terminated	Crittenden	Nashville	LRN-2017-00426
4	Elkton Lake	Approved - Terminated	Todd	Nashville	LRN-2018-00451
5	Mud Camp I	Approved - Terminated	Cumberland	Nashville	LRN-2019-00761
6	Mud Camp III	Approved - Terminated	Cumberland	Nashville	LRN-2020-01203

Upper Licking River Service Area – Active Project Status

There are four active projects in this service area and one in the LTM phase. These projects are within the USACE Louisville District and the EKSAP region, which utilizes the EIU credit system. (**Figure 8, Table 14**).

Broke Leg Creek, Morgan County: Approved in late 2016, this property has over 35,000 feet of stream length. In 2017, the landowner signed a land contract with the intent to donate a conservation easement. In 2022, FILO filed the easement, received Section 106 concurrence, conducted additional bat surveys for Biological Assessment for Section 7 of the Endangered Species Act, and continued working on the Mitigation Plan.

Horse Mill Branch, Morgan County: In 2021, FILO started designing the project, worked on a Biological Assessment for Section 7 of the Endangered Species Act, and conducted the Preliminary Design/JD and Assessment Verification meetings. In 2022, FILO conducted additional bat surveys for the Biological Assessment for Section 7 of the Endangered Species Act, received Section 106 concurrence, and started developing the design and Mitigation Plan.

Morgan Co. Extension Wetland, Morgan County: FILO acquired the property in 2021.Over 50 acres are proposed for various types of mitigation. In 2022, FILO conducted the Preliminary Design/JD and Assessment Verification meetings, started collecting design data, and began designing the project.

Slabcamp Branch, MSU Property, Rowan County: In 2021, FILO acquired 142 acres at the downstream end of the project and conducted the Preliminary Design/JD and Assessment Verification meetings. In 2022, FILO received Section 106 concurrence.

Figure 8. Project Status in the Upper Licking River Service Area

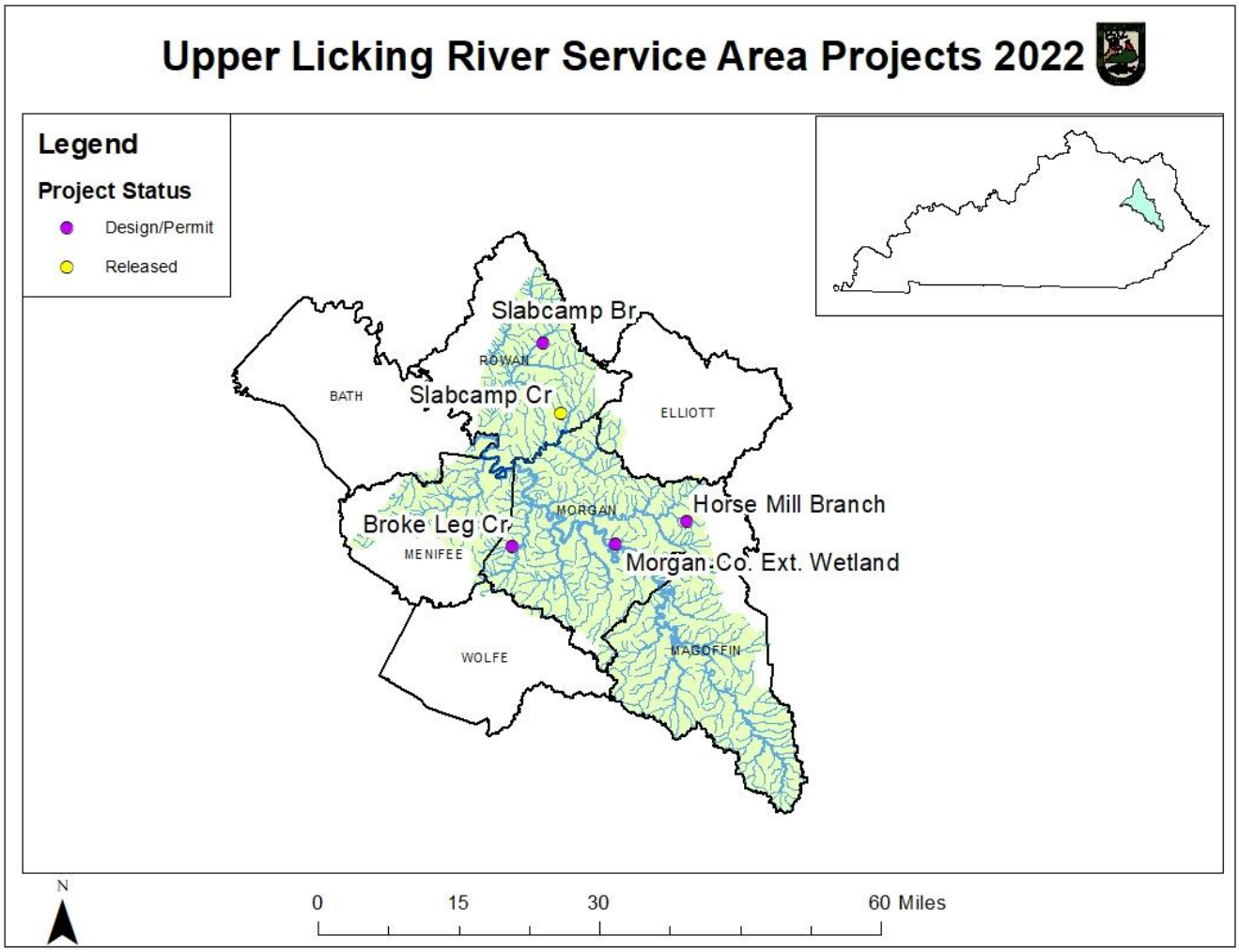


Table 15. Project Status in the Upper Licking River Service Area

Count	Project	Status	County	USACE District	404 Permit #
1	Morgan Co. Ext. Wetland	Design/Permit	Morgan	Louisville	LRL-2018-00682
2	Horse Mill Branch	Design/Permit	Morgan	Louisville	LRL-2018-00100
3	Slabcamp Branch	Design/Permit	Rowan	Louisville	LRL-2018-00562
4	Broke Leg Cr	Design/Permit	Morgan	Louisville	LRL-2016-00371-pgj
5	Slabcamp Cr	Released - Long Term Management	Rowan	Louisville	LRL-2009-762-pgj
1	Straight Cr	Approved - Terminated	Morgan	Louisville	LRL-2015-896
2	Slabcamp Cr #2	Approved - Terminated	Rowan	Louisville	-
3	Ratliff	Approved - Terminated	Menifee	Louisville	LRL-2016-896

Lower Licking River Service Area – Active Project Status

There are three active projects in this service area and two in the LTM phase. These projects are within the USACE Louisville District and the KAP region, which utilizes the AMU credit system (**Figure 9, Table 16**).

Big Farm, Bath County: The project was approved in 2014 and the 490-acre property was purchased in 2015. It is now part of the Clay Wildlife Management Area (WMA). In 2020, FILO constructed most of the project. Some repairs were needed due to large flood events in 2020-21. Repairs commenced late in 2021 with planting following, thus requiring an updated As-Built report. The As-Built report is under revision with anticipated submittal in early 2023. Data collection commenced in 2021, but due to timing of events and repairs, monitoring Year 1 will commence in 2023. In 2022, FILO submitted the As-Built and continued monitoring.

Myers Station, Nicholas County: The 462-acre property was purchased in 2014 and became part of the Clay WMA. FILO submitted the Year 5 monitoring report in 2021. Some remedial actions are required on Coon Creek and Cassidy Creek in the southern portion of the property. The North side of the project is meeting success criteria goals and the KDFWR discussed release with the IRT. Further discussion will be held during a compliance visit. Final partial credit release determinations are pending.

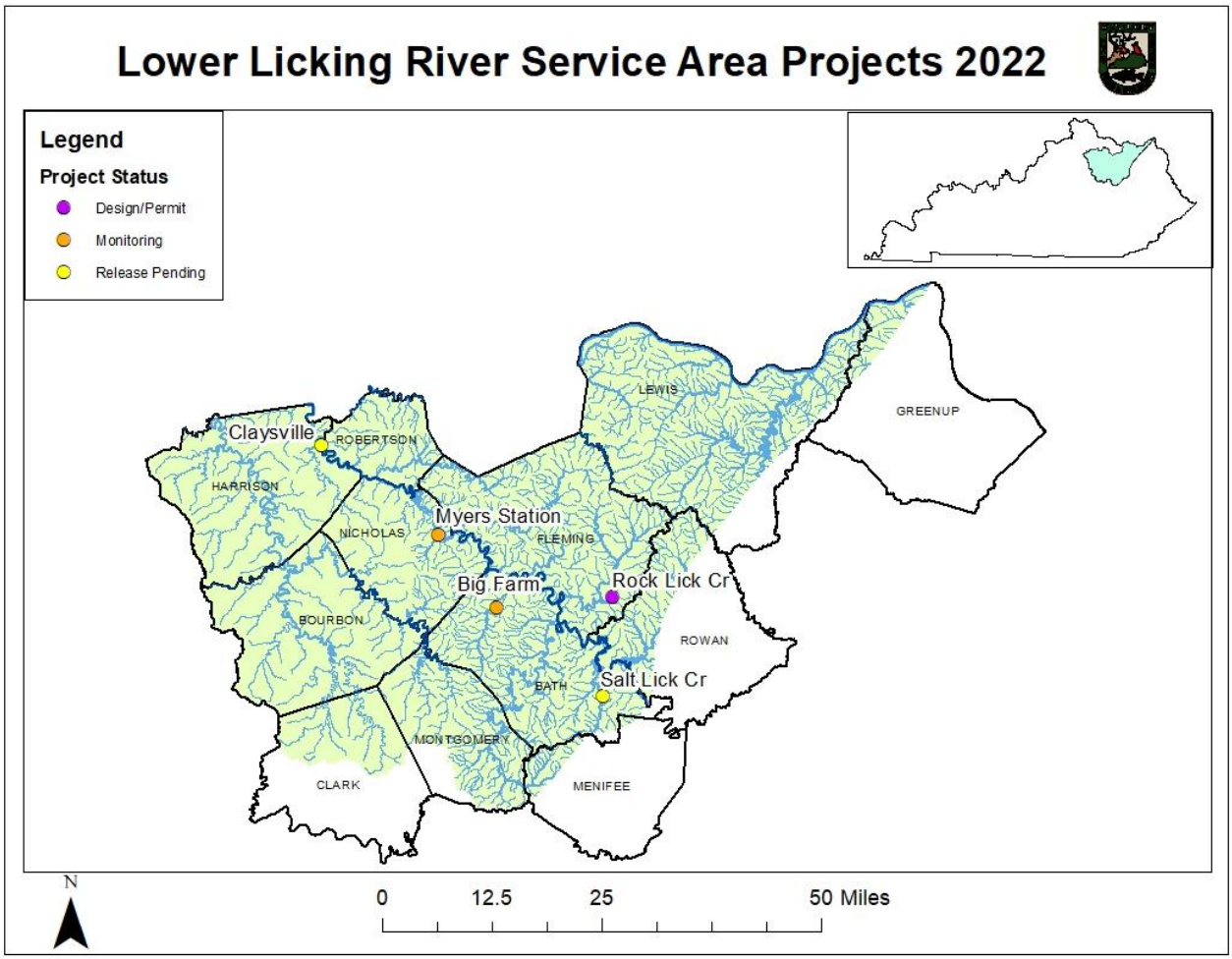
Rock Lick Creek, Fleming County: The project was approved in 2017. The site is on state-owned property known as Maxey Flats. The mitigation actions are purposed in the buffer property surrounding a capped hazardous waste landfill. In 2019 and 2020, FILO continued to collect survey data and design the project. In 2021, FILO conducted the Preliminary Design/JD and Assessment Verification meetings. In 2022, FILO continued developing the design and Mitigation Plan.

Salt Lick Creek, Bath County: The site entered the LTM phase in 2020. A repair effort is in place to correct some eroded banks and was completed in 2022.

Table 16. Project Status in the Lower Licking River Service Area

Count	Project	Status	County	USACE District	404 Permit #
1	Rock Lick Cr	Design/Permit	Fleming	Louisville	LRL-2016-393
2	Big Farm	Monitoring - YR 1	Bath	Louisville	LRL-2014-209-pgj
3	Myers Station	Partial Release Pending	Nicholas	Louisville	LRL-2012-637-pgj
4	Salt Lick Cr	Released - Long Term Management	Bath	Louisville	LRL-2011-891-pgj
5	Claysville	Released - Long Term Management	Bath	Louisville	LRL-2011-891-pgj
1	Martin Mill Branch	Approved - Terminated	Fleming	Louisville	LRL-2014-443-pgj
2	Greasy Cr	Approved - Terminated	Robertson	Louisville	NA

Figure 9. Project Status in the Lower Licking River Service Area



Upper Kentucky River Service Area – Active Project Status

There are eight active projects in this service area and seven in the LTM phase. These projects are within the USACE Louisville District and the EKSAP region, which utilizes the EIU credit system (**Figure 10, Table 17**).

East Fork Indian Creek, Menifee County: The project is in the Daniel Boone National Forest, with permanent protection provided by the U.S. Forest Service (USFS) Management Plan. In 2019, FILO staff planted additional container trees to improve woody stem density and diversity. There are some areas identified for repairs as noted in the 2019 report and during field visits. FILO initiated a repair plan, with contract awarded in November 2020. The Year 5 monitoring report was submitted in December 2020. The construction repair effort was completed in December 2021, with the planting effort completed in early 2022. The IRT conducted a site inspection in Fall 2022 and determined a minimum of two years post repair monitoring will continue.

Ross Creek 1 & 2, Lee and Estill Counties: The project is adjacent to the USFS Daniel Boone National Forest, the Kentucky River and several private properties. The 640-acre property was purchased in 2014. In 2020, FILO completed construction of the project. The As-Built report was submitted in May 2021. The Year 2 monitoring report was submitted in 2022. Some deficiencies on the site exist and a repair plan is under development.

Ross Creek 3, Lee County: The project is adjacent to Ross 1 and 2 and consists mostly of Kentucky River and small headwater preservation. This project was approved by the IRT in 2017. In 2019, FILO purchased the 290-acre property. In 2022, FILO started surveys for the Biological Assessment for Section 7 of the Endangered Species Act and the Phase 1 Archaeological Report and the Cultural Resources Report for Section 106 of the National Historic Preservation Act.

Ross Creek 4, Estill and Lee Counties: This project was approved by the IRT in 2019. KDFWR plans to purchase the property, which adjoins Ross Creek 1 & 2 through the Daniel Boone National Forestland. In 2022, FILO terminated the project due to inability to come to terms with the landowner.

Ross Creek 5 & 6, Lee County: An on-site IRT visit was conducted in 2021 and it received IRT mitigation approval. Currently title issues are being resolved before moving forward with acquisition(s). In 2022, the landowner for Ross 6 hired an attorney and is currently resolving title issues. The landowner of Ross 5 is currently making a decision on his offer.

Little Sexton Creek, Jackson and Clay Counties: This project was approved by the IRT in 2019. In 2021, FILO acquired the 1,585-acre property, collected field data for design, collected field data for a Biological Assessment for Section 7 of the Endangered Species Act, and conducted the Preliminary Design/JD and Assessment Verification meetings. In 2022, design and mitigation plans continued for most of the project, and FILO proposed an alternative mitigation approach for drainage B to the IRT.

Red Lick Wetland, Estill County: This project was still in the early stages of development at the end of 2022 and has the potential to generate about 8 wetland credits.

Frozen Creek, Breathitt County: This project was approved by the IRT in 2022 with contingencies that site protection be secured before moving forward to the Mitigation Plan. Currently, KDFWR is working with the landowners and the mineral right holders to ensure future site protection.

Figure 10. Project Status in the Upper Kentucky River Service Area

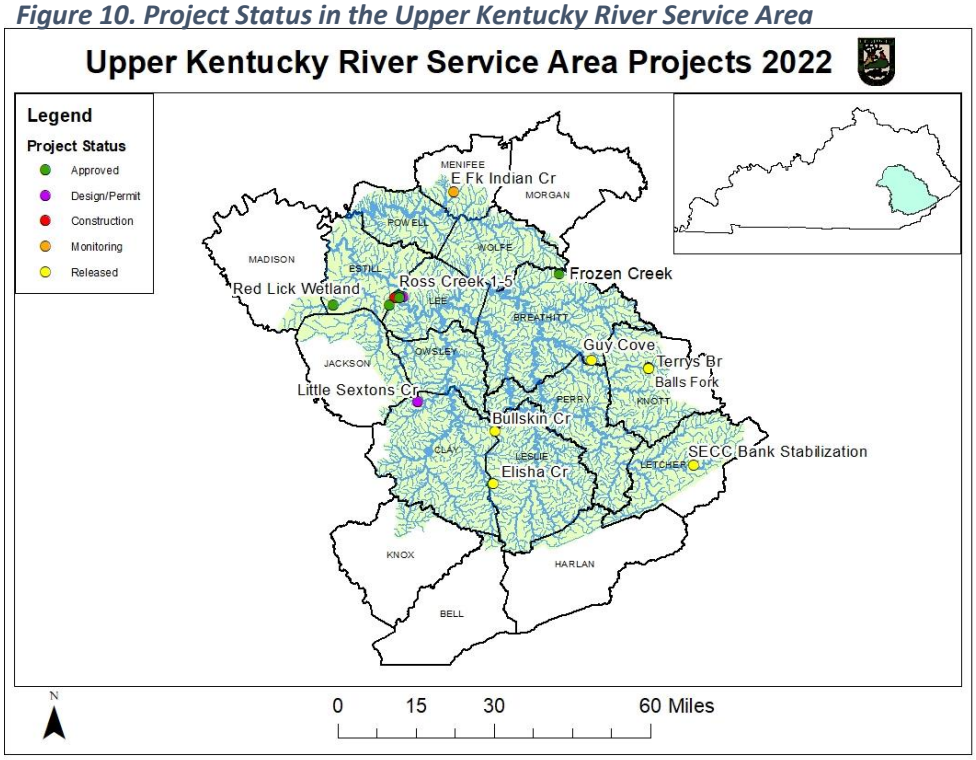


Table 17. Project Status in the Upper Kentucky River Service Area

Count	Project	Status	County	USACE Distrct	404 Permit #
1	Frozen Creek	CP Approved	Breathitt	Louisville	LRL-2022-00456
2	Red Lick Wetland	Pre-Approval	Estill	Louisville	LRL-2022-1026
3	Ross Cr #5	CP Approved	Lee	Louisville	LRL-2020-288
4	Ross Cr #6	CP Approved	Lee	Louisville	LRL-2020-326
5	Little Sextons Creek	Design/Permit	Jackson	Louisville	LRL-2018-00981-pgj
6	Ross Cr #3	Design/Permit	Lee	Louisville	LRL-2017-00042
7	Ross Cr #1 & #2	Monitoring - YR 2	Lee	Louisville	LRL-2013-143
8	E Fk Indian Cr	Post-repair Monitoring - YR 1	Menifee	Louisville	LRL-2012-273
9	Elisha Cr	Released - Long Term Management	Leslie	Louisville	LRL-2011-404-pgj
10	Balls Fork	Released - Long Term Management	Knott	Louisville	2002-01447
11	Bullskin Cr	Released - Long Term Management	Leslie	Louisville	200500205-pgj
12	Guy Cove (Laurel Fork)	Released - Long Term Management	Breathitt	Louisville	LRL-2007-615
13	Red Lick Cr	Released - Long Term Management	Estill	Louisville	LRL-2005-131-lad
14	SECC Bank Stabilization	Released - Long Term Management	Letcher	Louisville	LRL-2005-1004-the
15	Terrys Br	Released - Long Term Management	Knott	Louisville	200500205
1	Upper Cane Creek	Approved - Terminated	Menifee	Louisville	LRL-2009-433-pgj
2	Frozen Creek	Approved - Terminated	Breathitt	Louisville	-
3	Hinton Branch	Approved - Terminated	Estill	Louisville	-
4	North Fork Ky River	Approved - Terminated	Perry	Louisville	-
5	Red Lick #2	Approved - Terminated	Estill	Louisville	-
6	Holly Fork	Approved - Terminated	Owsley	Louisville	LRL-2015-1020-pgj
7	Sand Lick	Approved - Terminated	Powell	Louisville	-
8	Troublesome Cr	Approved - Terminated	Perry	Louisville	-
9	Persimmon Hollow	Approved - Terminated	Leslie	Louisville	-
10	Doe Creek I	Approved - Terminated	Owsley	Louisville	LRL-2019-00182
11	Doe Creek II	Approved - Terminated	Owsley	Louisville	LRL-2019-01051
12	Anderson Branch	Approved - Terminated	Powell	Louisville	LRL-2019-00437
13	Middle Fork Cane Cr	Approved - Terminated	Powell	Louisville	LRL-2015-583-pgj
14	Muir Valley	Approved - Terminated	Wolfe	Louisville	LRL-2016-1060
15	Ross Cr #4	Approved - Terminated	Estill	Louisville	LRL-2019-563

Lower Kentucky River Service Area – Active Project Status

There are eight active projects in this service area and three in the LTM phase. These projects are within the USACE Louisville District and the KAP region, which utilizes the AMU credit system (**Figure 11, Table 18**).

Minors Creek, Owen County: The 309-acre property was purchased in 2014 and is now a part of the Kleber WMA. Construction began in the fall of 2017 and continued throughout 2018 with completion and final planting in early 2019. The As-Built survey and first year of monitoring were completed in 2019 with reports submitted in December 2019. The Year Four Monitoring Report was submitted in December 2022. A credit release request will be determined based on performance standards met.

Minors Creek 2, Owen County: In 2017, FILO purchased the 70-acre property, as headwater protection for the Minors Creek Mitigation Project. A concept plan for additional headwater mitigation was approved in 2021. No additional progress occurred in 2022.

Pond Creek, Owen County: The project is on the Chesney Tract of the Kentucky River WMA. It was approved in 2015 and the design started the same year but was later paused for cost concerns. Since then, FILO has continued LTM activities such as management restrictions, removal of overhead utilities and live-stake propagation. In 2022, FILO re-initiated a design consultation to consider a different approach to account for current site conditions.

Red Oak Creek Drainage C, Owen County: The project was approved in 2014 and was purchased in 2015. The 601-acre property was added to the Dr. James Rich WMA and design began in 2016. In 2017, FILO received the 401 WQC and submitted the 404-permit application. In 2018, FILO received the 404 permit and began construction. Final completion occurred in early 2019 with the As-Built and Year One Monitoring Report submitted in December 2019. The Year Four Monitoring Report was submitted in December 2022. A credit release request letter will follow based on performance standards met.

Red Oak Drainage: A, B, and D, Owen County: The project was approved in 2014 and was purchased in 2015. The 601-acre property was added to the Dr. James Rich WMA. In 2020, FILO began design and Mitigation Plan development. In 2022, FILO submitted a Biological Assessment for Section 7 of the Endangered Species Act and continued developing the Mitigation Plan and design.

Rogers Gap, Scott County: The project included the acquisition of 2,500 acres containing approximately 28 miles of stream channel. The design-build started in 2013 and construction was completed in 2016. FILO submitted the Year Two Monitoring Report in 2018. In 2019, a request was made to the IRT to construct an office and enclosed shooting range in the southern portion of the Veterans WMA (Rogers Gap) property. Since this is considered a land use change, IRT consultation was required and approved in an email from the Louisville District USACE on September 11, 2019. The email was filed in our records. In early 2020, an extensive planting effort occurred across the site with installation of 15,500 live stakes and over 300 container trees. The Year Four Monitoring Report was submitted in December 2020 and documents this effort.

The Year Five Monitoring Report was submitted in December 2021. The KDFWR intends to request monitoring release on portions of the project that are meeting success criteria goals. This request will be in conjunction with IRT site inspections.

Browns Bottom Wetland, Owen County: In 2022, FILO proposed to enhance 4.5 acres of wetland located on the Kentucky River WMA. The project is expected to generate 2.2 wetland credits and will be protected by a deed restriction.

Cave Creek Wetland, Fayette County: Still in the early stages of development in 2022, this site is a potential wetland restoration project that could generate approximately 10 wetland credits.

Figure 11. Project Status in the Lower Kentucky River Service Area

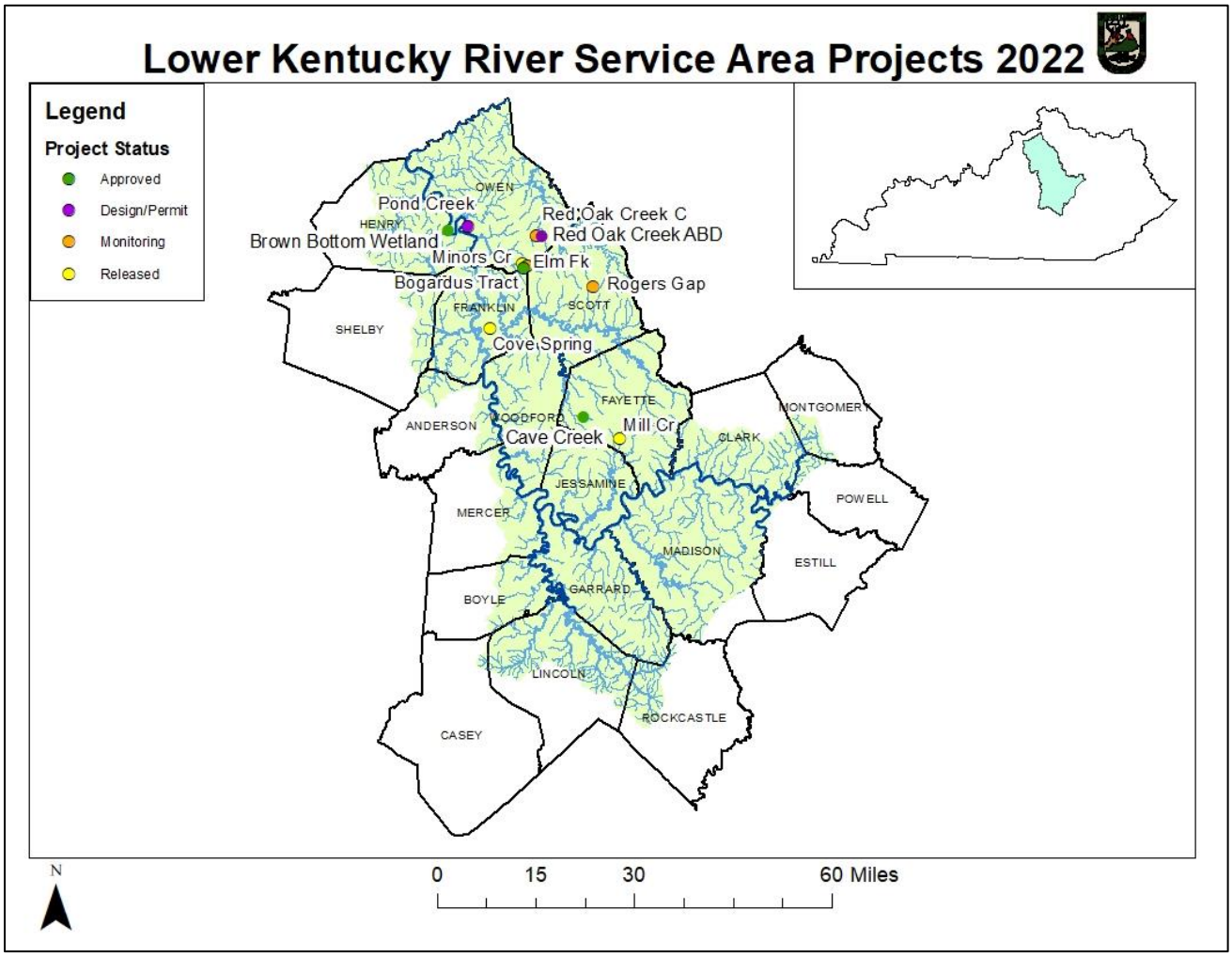


Table 18. Project Status in the Lower Kentucky River Service Area

Count	Project	Status	County	USACE District	404 Permit #
1	Minors Cr 2	CP Approved	Owen	Louisville	LRL-2019-01049
2	Browns Bottom	CP Approved	Owen	Louisville	LRL-2022-00711
3	Cave Creek Wetland	Pre-Approval	Fayette	Louisville	LRL-2022-00982
4	Pond Creek	Design /Permit	Owen	Louisville	LRL-2014-191-pgj
5	Red Oak Creek ABD	Design /Permit	Owen	Louisville	LRL-2018-00770-pgj
6	Minors Cr	Monitoring - YR 4	Owen	Louisville	LRL-2013-91-pgj
7	Red Oak Creek C	Monitoring - YR 4	Owen	Louisville	LRL-2014-500-pgj
8	Rogers Gap	Monitoring - YR 5	Scott	Louisville	LRL-2013-134-pgj
9	Elm Fk	Released - Long Term Management	Owen	Louisville	LRL-2012-263-pgj
10	Mill Cr	Released - Long Term Management	Fayette	Louisville	LRL-2009-611-pgj
11	Cove Spring	Released - Long Term Management	Franklin	Louisville	LRL-2009-614 pgj
1	Boling Branch	Approved - Terminated	Henry	Louisville	LRL-2017-261
2	Wolf Run	Approved - Terminated	Fayette	Louisville	200600323-pgj

Salt River Service Area – Active Project Status

There are nine active projects in this service area and one in the LTM phase. These projects are within the USACE Louisville District and KAP region, which utilizes the AMU credit system (**Figure 12, Table 19**).

Big Lick Hollow, Nelson County: IRT approved in 2018, this project was presented as part of a Full Delivery contract with Stantec Consulting Services Inc. It is expected to generate over 21,000 AMU stream credits and will be permanently protected with a third-party conservation easement. In 2022, FILO (and Stantec Consulting Services, Inc.) received Section 7 concurrence, received a WQC, and submitted the application for the 404 Department of Army Permit.

Dodge Gap, Jefferson County: IRT approved in 2018, this project is in the Jefferson Memorial Forest. It is expected it generate roughly 4,900 stream AMUs and will be permanently protected with a conservation easement. In 2021, a feasibility study was done to reassess jurisdictional reaches and add headwater streams to the project. In 2022, FILO continued to develop the easement with the landowner.

Harrison Fork, Nelson County: In 2017, FILO (and University of Louisville) received a Floodplain Permit. In 2019, FILO (and University of Louisville) received the 401 WQC. In 2021, FILO closed on the easement. In 2022, FILO (and University of Louisville) submitted the application for the 404 Department of Army Permit.

Otter Creek, Meade County: The project has the largest watershed of any FILO project with just over 100 square miles. Because of its size, good water quality, and significant physical degradation, the potential exists to create outstanding habitat that will support an excellent fishery and canoe recreation. In 2019, FILO completed the Environmental Assessment, a draft Mitigation Plan, and received concurrence for Section 7. In 2020, FILO continued design and Mitigation Plan development. In 2021 and 2022, FILO continued to work on deed restrictions.

Stillwell Branch, Larue County: IRT approved the CP in 2018, this project is on KDFWR's Rolling Fork WMA. It is expected to generate over 42,000 AMU stream credits and will be permanently protected with deed restrictions. In 2020, FILO conducted the Preliminary Design/JD and Assessment Verification meetings and continued design and Mitigation Plan development. In 2021, FILO submitted a draft Mitigation Plan and received concurrence for Section 106 of the National Historic Preservation Act. In 2022, FILO submitted a Biological Assessment for Section 7 of the Endangered Species Act, and continued design and Mitigation Plan development.

Rolling Fork Floodplain, Larue and Nelson Counties: The CP was approved by the IRT in 2020, this project is on KDFWR's Rolling Fork WMA. It is expected to generate 4,800 AMU stream credits, 64 wetland AMU credits and will be permanently protected with deed restrictions. In 2021, FILO started designing the project, collected field data for a Biological Assessment for Section 7 of the Endangered Species Act, and submitted a Phase I Archaeological Report for Section 106 of the National Historic Preservation Act. In 2022, FILO conducted the Preliminary Design/JD and Assessment Verification meetings, submitted a Biological Assessment for Section 7 of the Endangered Species Act, and continued design and Mitigation Plan development.

Rolling Fork River, Larue and Nelson Counties: Approved by the IRT in 2020, this project is on the KDFWR's Rolling Fork WMA and is adjacent to the Rolling Fork Floodplain project. In 2021, FILO started designing the project, collected field data for a Biological Assessment for Section 7 of the Endangered Species Act, and submitted a Phase I Archaeological Report for Section 106 of the National Historic Preservation Act. In 2022, FILO conducted the Preliminary Design/JD and Assessment Verification meetings, conducted mussel sampling and consulted with KDFWR mussel experts and USFWS to determine a stream restoration approach that would provide habitat improvement with minimal impact to existing mussel populations, and continued design and Mitigation Plan development.

Wolf Run, Jefferson County: The project is almost entirely on the Jefferson Memorial Forest. It will be developed in coordination with the Louisville-Jefferson County Metro Parks. Design began in late 2015. In 2022, FILO continued to develop the easement and design.

Mill Creek, Jefferson County: Approved by the IRT in 2020, this project is a large-scale urban project with over 180 public and private parcels that are projected to protect over 2,000 acres from development and stream encroachment. The project could generate up to approximately 69,000 AMU stream credits and 79 AMU wetland credits but is divided into five independently viable sections. In 2021 and 2022, title and appraisal work progressed. In 2022 FILO staff worked with Louisville Parks and Metropolitan Sewer District (MSD) on a public outreach effort for coordination and developing the Mill Creek corridor as a part of a larger trail and park system.

Figure 12. Project Status in the Salt River Service Area

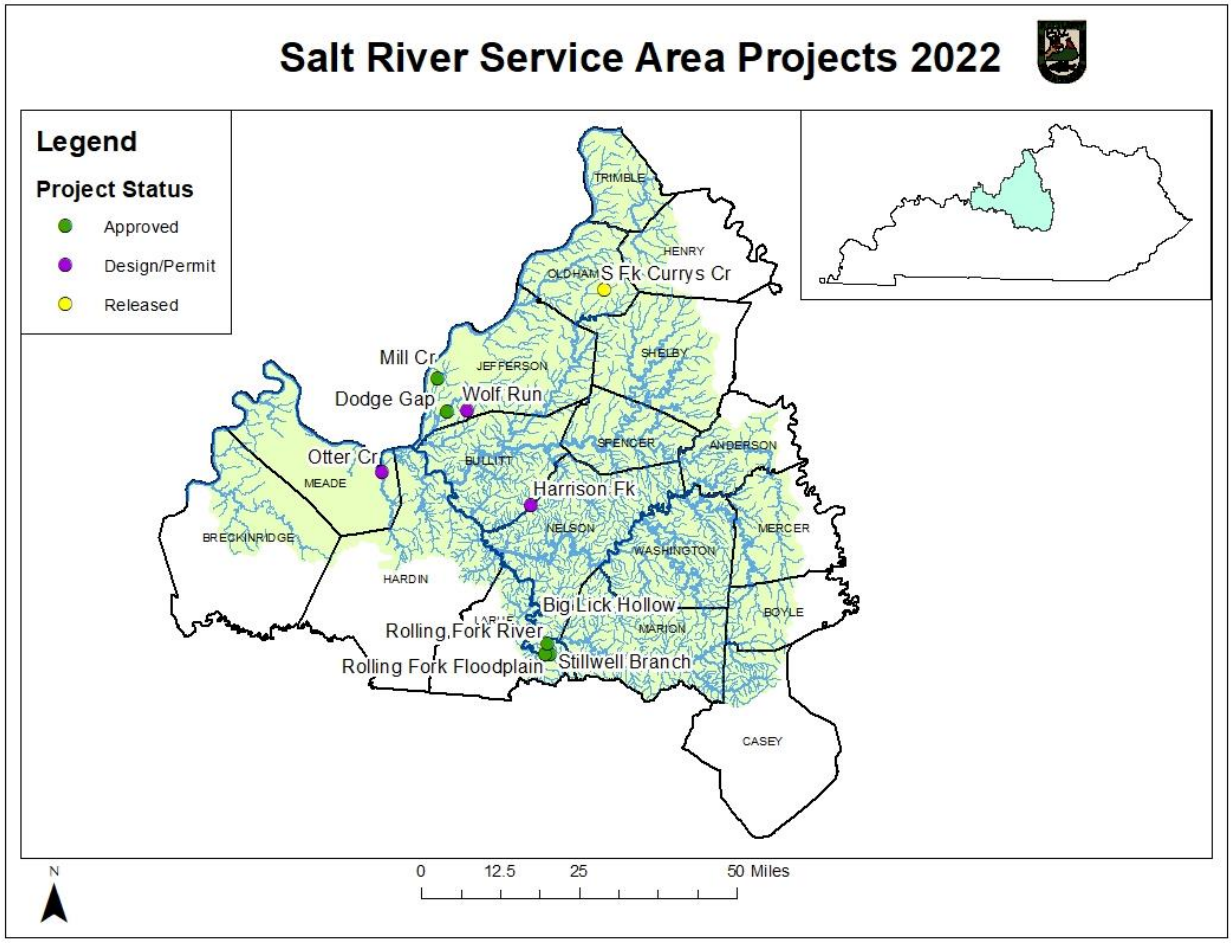


Table 19. Project Status in the Salt River Service Area

Count	Project	Status	County	USACE District	404 Permit #
1	Mill Creek	CP Approved	Jefferson	Louisville	LRL-2020-00188
2	Dodge Gap	CP Approved	Jefferson	Louisville	LRL-2018-00112
3	Rolling Fork Floodplain	Design/Permit	Larue/ Nelson	Louisville	LRL-2020-00630-pgj
4	Rolling Fork River	Design/Permit	Larue/ Nelson	Louisville	LRL-2020-00631-pgj
5	Big Lick Hollow	Design/Permit	Nelson	Louisville	LRL-2018-00383-pgj
6	Stillwell Branch	Design/Permit	Larue	Louisville	LRL-2017-00906-pgj
7	Harrison Fk	Design/Permit	Nelson	Louisville	LRL-2012-274-pgj
8	Otter Cr	Design/Permit	Meade	Louisville	LRL-2013-425-pg
9	Wolf Run	Design/Permit	Jefferson	Louisville	LRL-2014-60-pgj
10	S Fk Currys Cr	Released - Long Term Management	Oldham	Louisville	LRL-2009-98-pgj
1	Floyd's Fork Wetland	Approved - Terminated	Jefferson	Louisville	LRL-2019-00933-pgj
2	Floyd's Fork Streams	Approved - Terminated	Jefferson	Louisville	LRL-2015-216-pgj

Green River Service Area – Active Project Status

There are seven active projects in this service area and two in the LTM phase. These projects are within the USACE Louisville District and the KAP region, which utilizes the AMU credit system (**Figure 13, Table 20**).

Ivy Creek, Warren County: Approved by the IRT in 2019, this project is on private property with over three miles of Green River bank and riparian zone. It is estimated to produce over 37,000 AMU stream credits and 18 AMU wetland credits and will be permanently protected with a conservation easement. In 2022, FILO continued developing the easement and started collecting design data.

Big Rivers WMA Wetland, Union County: The project was approved in 2017. It is located on the Big Rivers WMA and it will provide over 32 wetland credits. In 2019, FILO continued working on the design and conducted a Preliminary Design meeting. In 2022, FILO continued developing the Mitigation Plan and design, submitted the Biological Assessment for Section 7 of the Endangered Species Act, and received Section 106 concurrence.

Eagle Creek Tributary, Union County: The project is entirely within the Higginson-Henry WMA. A settlement agreement was reached with the contractor in 2021. Year Five of monitoring was completed in 2021. Assessment, monitoring, and Adapted Management Plan (AMP) development was conducted in 2022 and will continue in 2023, along with additional monitoring.

Goose Creek, Casey County: The project was approved in 2013. In 2020, FILO completed construction. Immediately following construction, flooding caused damage resulting in the need for an (AMP). Data collection for the AMP is currently underway with a draft submittal developed 2022. Approval and implementation of the AMP are passed pending additional assessment for new mitigation on the property.

Trammel Creek, Allen County: FILO submitted the Year Five Monitoring Report in 2014. However, the need for additional repairs and planting extended monitoring. In 2017, FILO planted additional native trees of various sizes and submitted the Year 8 monitoring report. To further help with fence damage from flooding and livestock entering the easement, the landowner was approached regarding an easement expansion. This expansion was complete in 2018 which relocated the livestock fence farther from the stream. There are some areas identified for repairs during site visits. FILO developed a repair plan in 2019. The contract for this effort was awarded in November 2020 with repair work commencing in summer 2022. Remedial planting and monitoring commenced following the effort. The IRT agreed a site visit is not warranted but requested additional photo monitoring which will be provided in a report December 2023.

Bender Hollow, Lincoln County: In 2020, FILO began working on the Mitigation Plan and design and conducted the Preliminary Design/JD and Assessment Verification meetings. In 2021, FILO finalized the easement, submitted a Biological Assessment (BA) for Section 7 of the Endangered Species Act and submitted a Phase I Archaeological Report and Cultural Resources Report for Section 106 of the National Historic Preservation Act. In 2022, submitted a Biological

Assessment for Section 7 of the Endangered Species Act, and continued working on the Mitigation Plan and design.

Gabbard Branch, Butler County: Approved by the IRT in 2020, this project is expected to produce over 47,000 AMU stream credits and 15 AMU wetland credits. In 2022, FILO completed acquisition on 2 properties, totaling 808 acres.

Figure 13. Project Status in the Green River Service Area

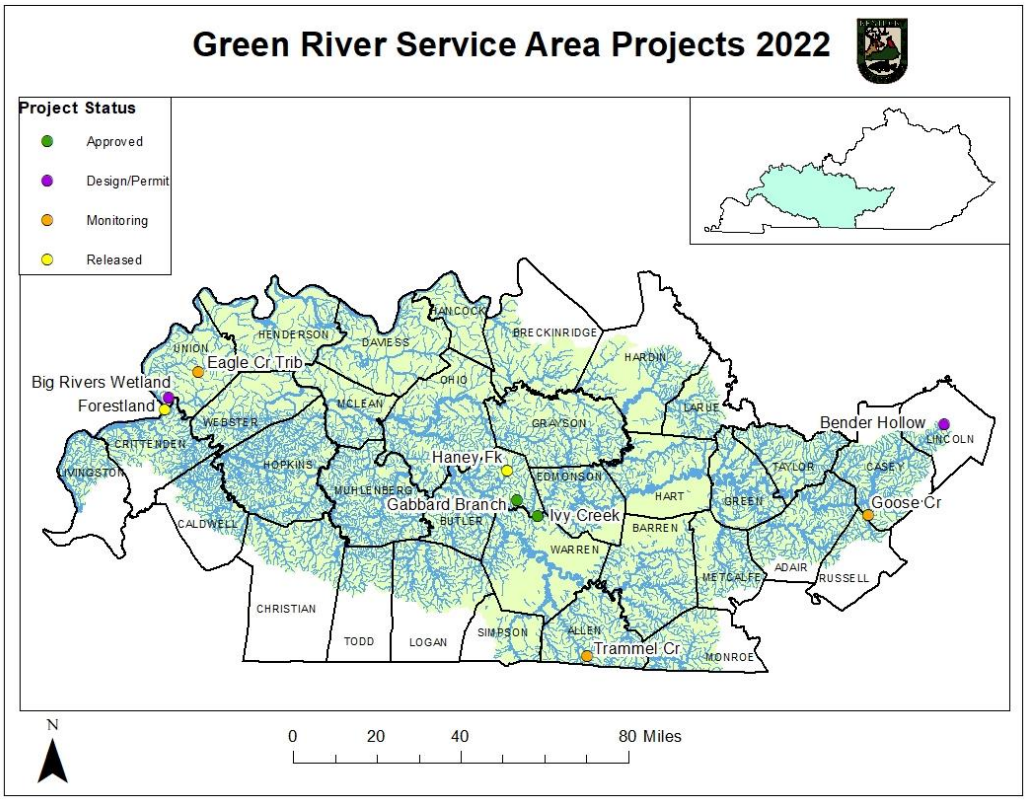


Table 20. Project Status in the Green River Service Area

Count	Project	Status	County	USACE District	404 Permit #
1	Ivy Creek	CP Approved	Warren	Louisville	LRL-2019-00895
2	Bender Hollow	Design/Permit	Lincoln	Louisville	LRL-2018-00982-pgj
3	Gabbard Branch	CP Approved	Butler	Louisville	LRL-2020-00169
4	Big Rivers Wetland	Design/Permit	Union	Louisville	LRL-2016-373-pgj
5	Goose Cr	Construction	Casey	Louisville	LRL-2012-646-pgj
6	Eagle Cr Trib	Monitoring - YR 6	Union	Louisville	LRL-2012-716 pgj
7	Trammel Cr	Release Pending	Allen	Louisville	LRL-2008-936-pgj
8	Forestland	Released - Long Term Management	Union	Louisville	-
9	Haney Fk	Released - Long Term Management	Butler	Louisville	LRL-2004-01363
1	Green River Lock and Dam 6	Approved - Terminated	Edmonson	Louisville	LRL-2016-43-pgj
2	Boyds Cr	Approved - Terminated	Barren	Louisville	LRL-2013-545-pgj
3	Green River St Forest Wetland	Approved - Terminated	Henderson	Louisville	LRL-2019-00435
4	Gary Branch	Approved - Terminated	Butler	Louisville	LRL-2020-00052
5	Farmers Cr	Approved - Terminated	Webster	Louisville	LRL-2014-58-pgj
6	Trammel Creek II	Approved - Terminated	Allen	Louiville	LRL-2018-00320-pgj

Jackson Purchase Service Area – Active Project Status

There are two active projects in this service area and one in the LTM phase. These projects are within the USACE Memphis and Nashville Districts and the KAP region, which utilizes the AMU credit system (**Figure 14, Table 21**).

Obion Creek 2, Hickman County: The Year 5 monitoring report was submitted in December 2021. Additional maintenance and invasive species treatments are needed to bring the project into compliance. Remedial actions will be purposed and implemented in 2023.

Kaler Bottoms, Graves County: The IRT approved this project in 2019 and it is estimated to generate 7 AMU wetland credits. In 2020, FILO purchased the 40-acre property. It is now part of the Kaler Bottoms WMA. No additional action occurred in 2022.

Figure 14. Project Status in the Jackson Purchase Service Area

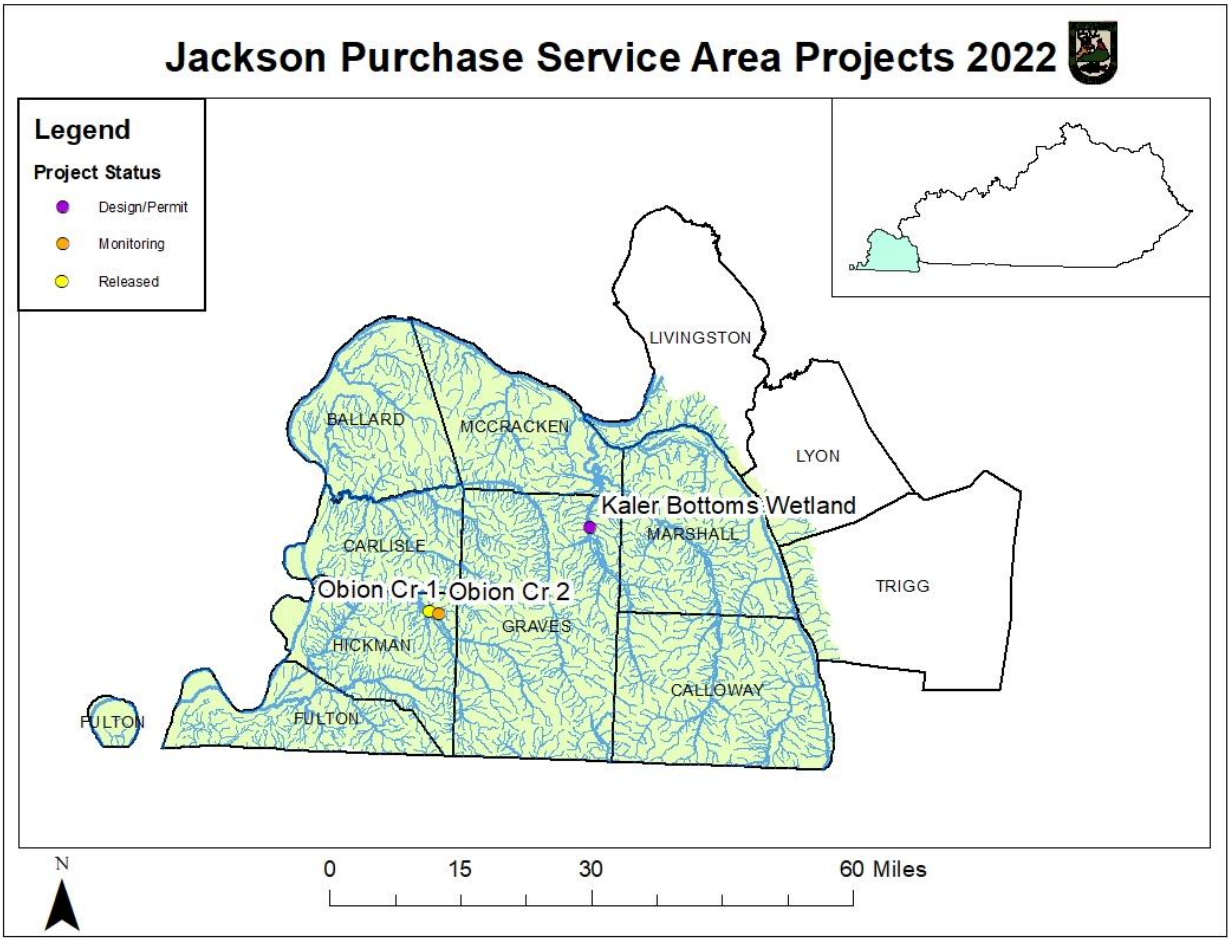


Table 21. Project Status in the Jackson Purchase Service Area

Count	Project	Status	County	USACE District	404 Permit #
1	Obion Cr 2	Monitoring - YR 5	Hickman	Memphis	MVM-2010-074
2	Kaler Bottoms	Design / Permit	Graves	Nashville	LRL-2019-00536
3	Obion Cr 1	Released - Long Term Management	Hickman	Memphis	200300263
1	East Fork Clark's River	Approved - Terminated	Calloway	Nashville	-

Northern Kentucky Service Area – Active Project Status

There are ten active projects in this service area and none in LTM. These projects are within the USACE Louisville District and the KAP region, which utilizes the AMU credit system (**Figure 15, Table 22**).

Meadowland, Boone County: IRT approved in 2020, this project was presented as part of a Full Delivery contract with Stantec Consulting Services Inc. It is expected to generate over 20,000 AMU stream credits and will be permanently protected with a third-party conservation easement. In 2021, FILO (and Stantec Consulting Services, Inc.) conducted the Preliminary Design/JD and Assessment Verification meetings, submitted the Mitigation Plan, and received concurrence for Section 106 of the National Historic Preservation Act. In 2022, FILO (and Stantec Consulting Services, Inc.) conducted the Preliminary Design/JD and Assessment Verification Meetings on an additional tract, received Section 7 concurrence, and continued to develop the Mitigation Plan.

Middle Creek I, Boone County: The IRT approved this project in 2019 and it is expected to produce approximately 6,000 AMU stream credits. This project is located upstream of future projects Middle Creek II & III. FILO closed on the property in 2021. In 2022, FILO conducted the Preliminary Design/JD and Assessment Verification meetings and started developing the design and Mitigation Plan.

Middle Creek II, Boone County: This project adjoins the Middle Creek I restoration project and is in the early stages of development. FILO plans to implement a conservation easement. In 2021, FILO worked towards resolving title issues. In 2022, FILO conducted the Preliminary Design/JD and Assessment Verification meetings, continued to develop easements, and started developing the design and Mitigation Plan.

Middle Creek III, Boone County: This project was approved by the IRT in 2019 and is downstream of the additional Middle Creek projects. The project is in the early stages of development. In 2020, FILO purchased the 160-acre property. In 2022, FILO conducted the Preliminary Design/JD and Assessment Verification meetings and started developing the design and Mitigation Plan.

Steep Creek, Boone County: This project is expected to generate over 15,000 AMU stream credits. In 2022, FILO conducted the Preliminary Design/JD and Assessment Verification meetings, continued to develop the easement, and started developing the design and Mitigation Plan.

St. Anne Wetland, Campbell County. Presented to the IRT in 2020 and approved in 2021, the project is expected to generate about 8 wetland AMU credits. In 2022, FILO was in the land contract phase for the conservation easement.

Gunpowder I, Boone County. Presented to the IRT in 2020 and the CP was approved in 2021, the project is 116 acres of proposed restoration in the Gunpowder Creek watershed and is expected to produce over 2,500 AMU credits. In 2022, FILO was waiting for a final response from stakeholders involved with the property.

Trib to Twelvemile Creek, Campbell County: The IRT approved the project in 2021 and it is in the early stages of development. Located on 266 acres it is expected to produce close to 8,000 AMU credits. In 2022, FILO was in the land contract phase for the conservation easement.

Tribs to Gunpowder / Riddles Run, Boone County: Adjacent to Gunpowder I, this project has potential to add onto the proposed project in the watershed. Approved in 2021 by the IRT, it is located on 293 acres and is expected to produce 6,829 AMU credits. In 2022, FILO was in the land contract phase for the conservation easement.

Figure 15. Project Status in the Northern Kentucky Service Area

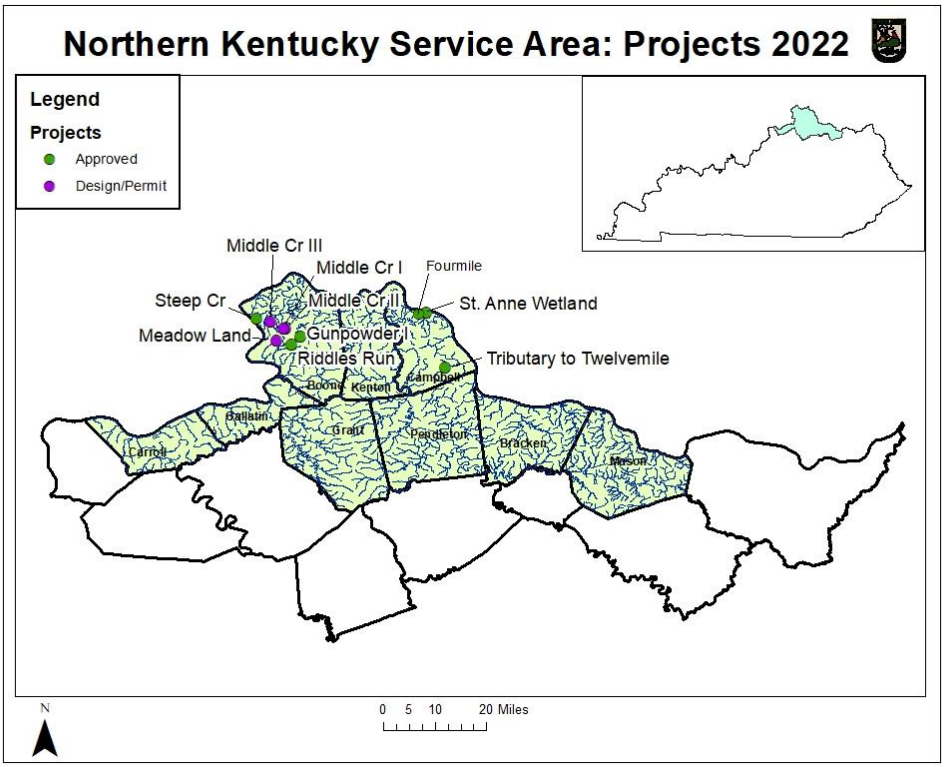


Table 22. Project Status in the Northern Kentucky Service Area

Count	Project	Status	County	USACE District	404 Permit #
1	St. Anne Wetland	CP Approved	Campbell	Louisville	LRL-2020-000186
2	Gunpowder I	CP Approved	Boone	Louisville	LRL-2019-00590
3	Steep Cr	CP Approved	Boone	Louisville	LRL-2018-00383
4	Fourmile	CP Approved	Campbell	Louisville	LRL-2022-00820
5	Middle Cr I	Design/Permit	Boone	Louisville	LRL-2019-161
6	Middle Cr II	Design/Permit	Boone	Louisville	LRL-2019-01052
7	Middle Cr III	Design/Permit	Boone	Louisville	LRL-2019-00590
8	Meadow Land	Design/Permit	Boone	Louisville	LRL-2020-00184
9	Trib to Twelve Mile Cr	CP Approved	Campbell	Louisville	LRL-2021-00105
10	Tribs Riddles Run / Gunpowder	CP Approved	Boone	Louisville	LRL-2021-00104
1	Steel Cr	Approved - Terminated	Gallatin	Louisville	LRL-2018-00725
2	Second Creek	Approved - Terminated	Boone	Louisville	LRL-2021-00411

References

U.S. Army Corps of Engineers. 2018. Modification of the Agreement Concerning In-Lieu Mitigation Fees between U.S. Army Corps of Engineers and Kentucky Department of Fish and Wildlife Resources. Modification #8 Adding a Northern Kentucky Service Area. LRL-2010-325.

U.S. Army Corps of Engineers. 2011. Modification – Number One of the Agreement Concerning In-Lieu Mitigation Fees between U.S. Army Corps of Engineers and Kentucky Department of Fish and Wildlife Resources. LRL-2010-325.

U.S. Army Corps of Engineers. 2008. 33 CFR Chapter II Part 332. Compensatory Mitigation for Losses of Aquatic Resources. Federal Register Vol. 73, No. 70, April 10, 2008.

Appendix A – CY22 Credit Sales, Costs and Balances

Table 23. Stream Credits

CY2022 Advanced Credit Sales and Balance

Service Area	Date of Payment	Corps 404 Id. No.	Credits Sold	$/Credit	Advanced Credits	Balance
Big Sandy Stream (EIU)	06/28/22	LRL-2010-698	21.00*	806	CY2022 Beginning Balance	204,374.66
					CY2022 Credit Sales	21.00
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**21.00**		CY2022 Ending Balance	204,353.66
Upper Kentucky Stream (EIU)					CY2022 Beginning Balance	205,327.37
					CY2022 Credit Sales	-
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		-		CY2022 Ending Balance	205,327.37
Upper Licking Stream (EIU)	01/28/22	LRL-2018-1031	140.00	750	CY2022 Beginning Balance	226,107.40
	06/23/22	LRL-2017-525	74.00	750	CY2022 Credit Sales	261.00
	06/28/22	LRL-2009-762	47.00*	747	CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**261.00**		CY2022 Ending Balance	225,846.40
Upper Cumberland Stream (EIU)	05/17/22	LRN-2010-01277	464.00	880	CY2022 Beginning Balance	229,446.89
					CY2022 Credit Sales	464.00
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**464.00**		CY2022 Ending Balance	228,982.89
Lower Kentucky Stream (AMU)	04/01/22	LRL-2020-975	782.00	330	CY2022 Beginning Balance	218,266.80
	07/29/22	LRL-2022-338	686.00	330	CY2022 Credit Sales	6,788.00
	09/22/22	LRL-2019-748	5,320.00	395	CY2022 Credit Releases	4,216.00
	CY2022 TOTAL CREDITS SOLD		**6,788.00**		CY2022 Ending Balance	215,694.80
Lower Licking Stream (AMU)	07/06/22	LRL-2019-0929	2,594.00	350	CY2022 Beginning Balance	205,968.93
	07/26/22	LRL-2022-377	473.00	350	CY2022 Credit Sales	4,005.00
	08/01/22	LRL-2021-1036	938.00	350	CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**4,005.00**		CY2022 Ending Balance	201,963.93
Lower Cumberland Stream (AMU)					CY2022 Beginning Balance	174,762.59
					CY2022 Credit Sales	-
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		-		CY2022 Ending Balance	174,762.59
Salt Stream (AMU)	07/25/22	LRL-2021-936	503.00	415	CY2022 Beginning Balance	110,432.96
	07/27/22	LRL-2022-185	646.00	415	CY2022 Credit Sales	5,433.00
	07/29/22	LRL-2022-077	1,588.00	415	CY2022 Credit Releases	-
	10/04/22	LRL-2022-475	124.00	518	CY2022 Ending Balance	104,999.96
	10/26/22	LRL-2021-146	354.00	518		
	11/28/22	LRL-2018-246	30.00	518		
	12/08/22	LRL-2021-607	2,188.00	518		
	CY2022 TOTAL CREDITS SOLD		**5,433.00**			
Green River Stream (AMU)	05/20/22	LRL-2021-443	44,030.00	400	CY2022 Beginning Balance	178,350.94
	07/05/22	LRL-2018-1091	17,031.00	400	CY2022 Credit Sales	61,820.00
	08/04/22	LRL-2021-1035	759.00	400	CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**61,820.00**		CY2022 Ending Balance	116,530.94
Jackson Purchase Stream (AMU)					CY2022 Beginning Balance	231,160.51
					CY2022 Credit Sales	-
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		-		CY2022 Ending Balance	231,160.51
Northern Kentucky Stream (AMU)	03/04/22	LRL-2010-325	200,000.00**		CY2022 Beginning Balance	-
	10/03/22	LRL-2022-595	630.00	522	CY2022 Credit Sales	630.00
					CY2022 Credit Releases	200,000.00
	CY2022 TOTAL CREDITS SOLD		**630.00**		CY2022 Ending Balance	199,370.00

*Returned funds from 'pre-Instrument' completed project

Table 24. Wetland Credits

CY2022 Advanced Credit Sales and Balance (con't)

Service Area	Date of Payment	Corps 404 Id. No.	Credits Sold	$/Credit	Advanced Credits	Balance
Upper Kentucky Wetland (AMU)					CY2022 Beginning Balance	73.940
					CY2022 Credit Sales	-
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		-		CY2022 Ending Balance	73.940
Upper Licking Wetland (AMU)	06/23/22	LRL-2017-525	6.400	61,500	CY2022 Beginning Balance	85.780
					CY2022 Credit Sales	6.400
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**6.400**		CY2022 Ending Balance	79.380
Upper Cumberland Wetland (AMU)	04/12/22	LRN-2011-00709	80.159		CY2022 Beginning Balance	80.159
					CY2022 Credit Sales	80.159
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**80.159**		CY2022 Ending Balance	-
*Nashville Corps advanced credits withdrawn						
Big Sandy Wetland (AMU)					CY2022 Beginning Balance	93.439
					CY2022 Credit Sales	-
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		-		CY2022 Ending Balance	93.439
Salt River Wetland (AMU)	01/13/22	LRL-2015-493	0.600	61,500	CY2022 Beginning Balance	18.437
	03/04/22	LRL-2010-325*	100.000		CY2022 Credit Sales	29.900
	05/03/22	LRL-2019-191	0.500	61,500	CY2022 Credit Releases	100.000
	06/13/22	LRL-2003-1197	14.100	61,500	CY2022 Ending Balance	88.537
	07/25/22	LRL-2021-936	7.400	61,500		
	07/25/22	LRL-2020-589	6.000	61,500		
	09/26/22	LRL-2022-469	0.200	78,000		
	10/17/22	LRL-2020-916	1.100	78,000		
	CY2022 TOTAL CREDITS SOLD		**29.900**			
*Louisville Corps advanced credit increase						
Green River Wetland (AMU)	05/20/22	LRL-2021-443	38.500	61,500	CY2022 Beginning Balance	137.512
					CY2022 Credit Sales	38.500
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**38.500**		CY2022 Ending Balance	99.012
Jackson Purchase Wetland (AMU)					CY2022 Beginning Balance	188.580
					CY2022 Credit Sales	-
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		-		CY2022 Ending Balance	188.580
Lower Licking Wetland (AMU)	07/06/22	LRL-2019-929	1.500	61,500	CY2022 Beginning Balance	95.020
					CY2022 Credit Sales	1.500
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**1.500**		CY2022 Ending Balance	93.520
Lower Cumberland Wetland (AMU)	4/12/2022	LRN-2011-00709*	75.992		CY2022 Beginning Balance	75.992
					CY2022 Credit Sales	75.992
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**75.992**		CY2022 Ending Balance	-
*Nashville Corps advanced credits withdrawn						
Lower Kentucky Wetland (AMU)	07/22/22	LRL-2022-268	0.400	61,500	CY2022 Beginning Balance	85.268
	09/22/22	LRL-2019-748	2.000	78,000	CY2022 Credit Sales	2.400
					CY2022 Credit Releases	-
	CY2022 TOTAL CREDITS SOLD		**2.400**		CY2022 Ending Balance	82.868
Northern Kentucky Wetland (AMU)	01/13/22	LRL-2020-633	0.600	61,500	CY2022 Beginning Balance	64.900
	03/15/22	LRL-1999-289	4.100	61,500	CY2022 Credit Sales	7.400
	07/05/22	LRL-2019-791	1.300	61,500	CY2022 Credit Releases	-
	10/03/22	LRL-2022-595	1.400	78,000	CY2022 Ending Balance	57.500
	CY2022 TOTAL CREDITS SOLD		**7.400**			

Appendix B, C and D: Long-Term Management

Long-term Management (LTM) has evolved significantly with the age of the FILO Program. As more project sites are acquired, and more projects are completed, and most notably as the program improves processes and procedures toward meeting compliance objectives, the resulting scope and quantity of long-term management for the FILO program has increased significantly. In order to provide context and insight to this significant effort, Appendix B – Easement Assessments, Appendix C – General Maintenance, and Appendix D – Initial Physical and Biological Improvement each list and describe activities completed in those respective categories. The first category of LTM consists simply of making sure site protection instruments are being honored on projects where construction and monitoring for credit release is complete or near complete. This consists of annual site visits and contacts with land managers or landowners to maintain those relationships. In the event the project needs attention, such as new boundary marking or signs, these efforts are reported to USACE when necessary, and/or action items or work orders are added to the list for FILO staff or contractors. The second category of LTM, General Maintenance, is typically maintenance activities that are necessary mostly within the period of time between a project construction warranty and the end of the active credit release monitoring period. This may include activities done as a part of a formal or informal adaptive management plan, or pre-emptive actions to help support mitigation project success. This category is technically not LTM, but part of project compliance. We include it operationally with LTM because we utilize the same staff within FILO to accomplish all these categories, and not all of these tasks have historically been fully captured in project monitoring reports. In order to clarify this distinction, the presentation of this information will likely change in subsequent annual reports, likely moving this reporting exclusively to annual project monitoring reports instead of partially or duplicitously in annual reports. The third category of LTM in this annual report is the Initial Physical and Biological Improvement (IPBI) actions. These are actions that occur as soon after a site protection instrument is under contract as possible. Due to restrictions associated with permit processing and timing, such as Archaeology, Cultural and Biological (among several other) regulatory concurrences necessary prior to certain actions, the actions available to the program for this category are significantly limited. However, some actions such as limiting and controlling access by vehicles and livestock, as well as treatment of invasive vegetation, conversion to native herbaceous vegetation are typically allowed and have a very well-known and immediate positive effect on the landscape, especially riparian and wetland areas.

Appendix B – Easement Assessments

Each year, program staff visit nearly all past projects that have been released from active monitoring in order to monitor easement compliance and determine if there are any encroachments to enforce or other LTM activities that are necessary. Easement encroachments are typically few. Consistent with the Instrument, encroachments observed are reported to USACE and then a resolution is determined and implemented. More typical are notations of excessive erosion and invasive vegetation. When appropriate, supplemental care activities such as live-staking, tree planting, or invasive species treatment are implemented. These activities are not necessarily required by a formal regulatory action, but address site resilience and risk management over the long-term as inferred from the Instrument. This past year's easement assessment activities are listed in the following table.

Table 25. Long-Term Management Easement Assessments

Project Name	USACE ID	Service Area	Latitude	Longitude	Original Easement Holder	Current Easement Holder	Easement Description	Project Length/Area	Project Completion	Date Visited 2022	Easement Violations	Violation Description	Stream Instability	Instability Description
East Fork Little Sandy #1	LRL-200401120	Big Sandy	38.22028	-82.74722	Allen Holbrook, Kevin McCormick	Todd Case replaced Allen Holbrook	25 ft from normal flow edge of water	1522 linear feet	2010	4/26/2022	No	N/A	No	N/A
East Fork Little Sandy #2	LRL-2009-332	Big Sandy	38.21806	-82.74028	Carl Kirk, Jack Holcomb, Elmer Lucas, Bill Morehead, James Metz,	Todd Case replaced Allen Holbrook	EFLS: 50 ft from edge of water; Tribs; 25 ft from edge of water	9000 linear feet	2011	4/26/2022	No	N/A	No	N/A
East Fork Little Sandy #3	LRL-2008-1082	Big Sandy	38.22333	-82.75139	Robert Baker, Elmer Lucas, Craig McNeil, Bill Johnson	Charles Mullet replaced Craig McNeil	EFLS: 25-35 ft from edge of water; Tribs: 15-25 ft from edge of water	7496 linear feet	2010	4/26/2022	No	N/A	No	N/A
East Fork Little Sandy #4	LRL-2009-123	Big Sandy	38.22081	-82.73278	Eugene Horton, Kevin McCormick		EFLS: 35-55 ft from centerline	3169 linear feet	2011	4/26/2022	No	N/A	No	N/A
Left Fork Trace Creek	LRL-200600160	Big Sandy	38.33111	-82.74028	Ron and Stephanie Young		25 feet from restored stream bank	1300 linear feet	2008	4/26/2022	No	N/A	No	N/A
Locust Creek	LRL-2008-1249	Big Sandy	38.02028	-82.89972	James Burton, William Green, Nannie Rigsby, Charles & Laura Bell, Kimberly & Dave Compton	Layfatte Marcum replaced Charles & Laura Bell	Locust Creek: 50 ft from edge of water; Tribs; 15 ft from edge of water	1850 linear feet	2010	4/26/2022	No	N/A	No	N/A
Middle Creek Stream Restoration	LRL-2006-1256	Big Sandy	37.65444	-82.80528	Middle Creek National Battlefield Foundation, Inc, Franklin Fitzpatrick Trustee		50 ft from edge of water. RDB of Middle Cr at DS end of project excluded	9230 linear feet	2008	6/30/2022	No	N/A	Yes	Minimal amount of erosion
Upper Laurel Creek	200500901	Big Sandy	38.01139	-82.88833	Garland Lyons, Thomas Fletcher	New Landowner (No Name)	50 ft from edge of water. 30 ft from edge of water along road side	2700 linear feet	2009	4/26/2022	No	N/A	No	N/A
Buck Creek - Pumphrey Tract	LRN-2006-2255	Lower Cumberland	37.1085	-84.41897	The Nature Conservancy		Entire property under TNC protection	62345 linear feet	2009	6/22/2022	Yes	West end of easement is mowed where the stream is adjacent to private property/yards	No	N/A
Hatchery Creek	LRL-2010-00444	Lower Cumberland	36.87603	-85.14614	US Army Corps of Engineers		Protection through modification of the Lake Cumberland Resource Area Management Plan.	9170 linear feet	2015	6/2/2022		N/A		N/A
Cove Spring Stream and Wetland Restoration	LRL-2009-614-pgj	Lower Kentucky	38.21885	-84.84748	City of Frankfort, HG Mays, KYTC		Width on site varies from 25ft at narrowest to 670 feet at widest	7203 linear feet, 20.92 acres	2013	5/24/2022	No	N/A	No	N/A
Elm Fork	LRL-2012-263-pgj	Lower Kentucky	38.3609	-84.7525	KDFWR (Deed Restriction)		150 feet	8511 linear feet	2014	7/28/2022	No	N/A	No	N/A
Mill Creek Elementary	LRL-2009-611	Lower Kentucky	37.9744	-84.4878	Mill Creek Elementary School		Avg. of 45 ft outward from the centerline of the stream channel	680 linear feet	2009	7/28/2022	No	N/A	No	N/A
Kinniconnick Creek	LRL-2007-409-pgj	Lower Licking	38.48389	-83.37528	Jack Thomas, and Tom Esham		Jack Thomas 200ft on right bank 50 ft from toe of bank one side, Tom Esham 5,850; 25 from top of bank on Indian Creek; 25ft from toe on tribs	6050 linear feet	2005	10/20/2022	No	N/A	No	N/A
South Fork Curry's Fork	LRL-2009-98-pgj	Salt	38.36389	-85.38472	Oldham County School Board		DS of Bridge of toe of hill to road easement/ US of bridge 50ft each	4638 linear ft./ 1.33 acres	2012	No Visit	NA	N/A	NA	N/A
Crane's Nest	2009-01424	Upper Cumberland	37.01017	-83.87247	Robin Rosential		average easement width 77 feet; 4 acres	2253 linear feet	2013	6/21/2022	No	N/A	No	N/A
Balls Fork		Upper Kentucky	37.39528	-82.97556	Rudy Noble		25ft from constructed sides	750 linear feet	2007	8/18/2022	No	N/A	Yes	Minimal amount of erosion
Bullskin Creek	200400071-ejs	Upper Kentucky	37.22889	-83.51417	Ronnie Gay		30 feet either side of the Normal flow of the creeks edge	1825 linear feet	2006	6/30/2022	No	N/A	No	N/A
Elisha Creek	LRL-2011-404-pgj	Upper Kentucky	37.08529	-83.52642	USFS		Project is protected under USFS Management Plan	4227 linear feet	2013	8/18/2022	No	N/A	No	N/A
Red Lick Creek	LRL-2005-131-lad	Upper Kentucky	37.58972	-84.07167	Sue and Emerson McAffee		50 ft from waters edge at Normal flow	1860 linear feet	2007	6/22/2022	No	N/A	Yes	100 to 150 ft of extensive erosion next to the bridge on the right descending bank
SECC Bank Stabilization	LRL-2005-1004-the	Upper Kentucky	37.12083	-82.82694	SECC		25 ft from construction side of Normal creek flow	825 linear feet	2006	6/30/2022	No	N/A	No	N/A
Terry's Branch	200500205-pgj	Upper Kentucky	37.39194	-82.97389	Rudy Noble		50' from stream edge at Normal flow	3020 linear feet	2007	8/18/2022	No	N/A	Yes	Large scale floods caused bank instablity
Slabcamp/Stonecoal Creek	LRL-2009-762-pgj	Upper Licking	38.11556	-83.33972	USFS		Project is protected under USFS Management Plan	48819 linear feet	2013	5/11/2022	No	N/A	No	N/A

Appendix C – General Maintenance

Each year, program staff organize and conduct many maintenance tasks. These tasks are often similar to LTM activities, however, are distinct because they occur during the active monitoring period, or prior to the final release of projects from active monitoring. In some cases, this maintenance is part of implementation of a prescribed mitigation plan activity, a formal adaptive management plan (AMP), reaction to annual monitoring observations, data and results, or could be a pro-active effort to supplement project effectiveness or head off shortcomings. In the following pages, there is a summary of activities followed by a detailed list of activities organized by service area and project. Each project includes a table of activities. The 2022 efforts focused on augmenting riparian zone and streambank vegetation.

Table 26. Completed Maintenance Task 2022 - Summary

Completed Maintenance Task List 2022				
Project Name	**USACE ID**	**Number of Days**	**Service Area**	**Action**
Big Farm	LRL-2014-209-pgj	3	Lower Licking	Planting
Bolts Fork	LRL-2010-698-pgj	4	Big Sandy	Planting
East Fork Indian Creek	LRL-2012-273-pgj	15	Upper Kentucky	Planting
Hatchery Creek	LRL-2010-00444	7	Lower Cumberland	Beaver Dam Removal
Higginson-Henry WMA	LRL-2012-716	2	Green	Invasive Treatment
Minors Creek	LRL-2013-91.pgj	8	Lower Kentucky	Invasive Treatment, Planting
Old Trace Creek	LRL-2013-336-pgj	5	Big Sandy	Planting
Red Oak Creek Tributary C	LRL-2010-00444	5	Lower Kentucky	Invasive Treatment, Planting
Roger's Gap	LRL-2012-134.pgj	2	Lower Kentucky	Invasive Treatment
Ross Creek 1 & 2	LRL-2013-143.pgj	10	Upper Kentucky	Invasive Treatment, Planting, Beaver Dam Removal
Salt Lick Creek	LRL-2010-891-pgj	3	Lower Licking	Planting
Trammel Creek	LRL-2008-00936	4	Green	Invasive Treatment, Planting
These activites are described in more detail in the annual monitoring and/or AMP reports for these projects.				

Big Sandy River Service Area:

Bolts Fork:
Maintenance at Bolts Fork commenced on January 21, 2022. On this day, a team of three worked on live staking 360 stems of sandbar willow and black willow species. On January 31, 2022, two of the team members returned to live stake 250 more of the same two species. A team of three returned on March 9, 2022, to plant 1200 bareroot trees of the following species: roughleaf dogwood, northern red oak, riverbirch, buttonbush, persimmon, and black oak. Container tree planting occurred on April 22, 2022, when a team of four planted 63 total trees of 12 species: box elder, riverbirch, shellbark hickory, persimmon, black walnut, sweetgum, tulip poplar, black cherry, bur oak, pin oak, northern red oak, and American elm.

Table 27. Completed Maintenance Task - Bolts Fork 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Bolts Fork	1/21/2022	MB, BWM, AP	Live Staking	360	Stem	Live staked in an alternating grid pattern along the stream edge.
Bolts Fork	1/31/2022	MB, AP	Live Staking	250	Stem	Live staked in an alternating grid pattern along the stream edge.
Bolts Fork	3/9/2022	MB, KG, NN	Planting Bareroot Trees	1200	Stem	Planted bareroot trees in a grid pattern in repaired areas.
Bolts Fork	4/22/2022	MB, KG, NN, ZF	Planting Container Trees	63	Container	Planted gallon container trees in repaired areas.

Old Trace Creek:
FILO staff planted bareroots at Old Trace Creek several times from March 3 to April 5, 2023. In teams of four, FILO planted three species (northern red oak, riverbirch, and buttonbush) which amounted to 3,400 total bareroot trees.

Table 28. Completed Maintenance Task Old Trace 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Old Trace Creek	3/23/2022	MB, KG, NN, ZF	Planting Bareroot Trees	800	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.
Old Trace Creek	3/24/2022	MB, KG, NN, ZF	Planting Bareroot Trees	700	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.
Old Trace Creek	3/28/2022	MB, KG, NN, ZF	Planting Bareroot Trees	700	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.
Old Trace Creek	4/4/2022	MB, KG, NN, ZF	Planting Bareroot Trees	700	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.
Old Trace Creek	4/5/2022	MB, KG, NN, ZF	Planting Bareroot Trees	500	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.

Lower Licking River Service Area:

Big Farm:
Live staking at Big Farm began on February 7 and ended on February 17, 2022. FILO visited in teams of three-on-three occasions in February and planted a total of 3,030 trees of the following species: black willow, sandbar willow, ninebark, red-osier dogwood, silky dogwood, and buttonbush.

Table 29. Completed Maintenance Task Big Farm 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Big Farm	2/7/2022	MB, AP, KG	Live Staking	680	Stem	Live staked in an alternating grid pattern along the stream edge.
Big Farm	2/8/2022	MB, AP, KG	Live Staking	800	Stem	Live staked in an alternating grid pattern along the stream edge.
Big Farm	2/17/2022	MB, KG, NN	Live Staking	1550	Stem	Live staked in an alternating grid pattern along the stream edge.

Salt Lick Creek:
FILO visited Salt Lick Creek as a team of eight for the first time on November 17, 2022. At this visit we planted 99 container trees of the following species: Ohio buckeye, paw paw, black walnut, and tulip poplar. FILO revisited again as a team of six on December 15, 2022, to continue the planting efforts with 1,500 bareroot trees of these species: white pine, persimmon, black cherry, and pin oak. FILO's last effort of the year was transplanting rivercane onto the areas that were disturbed during a repair effort. During this effort we transplanted 25 rivercane plants with a team of three on December 21, 2022.

Table 30. Completed Maintenance Task Salt Lick 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Salt Lick Creek	11/17/2022	KG, WR, LC, MB, BWM, BB, JC, AS	Planting Container Trees	99	Container	Planted 3-gallon container trees in repaired areas.
Salt Lick Creek	12/15/2022	MB, KG, AS, BB, WR, BW	Planting Bareroot Trees	1500	Stem	Planted bareroot trees in a grid pattern in repaired areas.
Salt Lick Creek	12/21/2022	KG, MB,	Planting Rivercane	25	Transplants	Planted native rivercane in repaired areas.

Upper Kentucky River Service Area:

East Fork Indian Creek:
East Fork Indian Creek recently went through a significant repair. A lot of the planting efforts were focused here in early 2022. FILO started with live staking using teams of three on February 2, 2022. This effort continued through March 1, 2022 in which 4,700 live stakes of six species (black willow, sandbar willow, ninebark, red-osier dogwood, silky dogwood, and buttonbush) were planted. Bareroot tree planting began on March 15, 2022 and continued through March 22, 2022. In teams of three or four FILO planted a total of 7,900 bareroot stems of various species (roughleaf dogwood, Virginia pine, northern red oak, riverbirch, buttonbush, persimmon, and black oak). Container trees were planted on April 19-20, 2022. Teams of four planted 177 total container trees of the following species: box elder, riverbirch, shellbark hickory, persimmon, black walnut, sweetgum, tulip poplar, black cherry, bur oak, pin oak, northern red oak, and American elm.

Table 31. Completed Maintenance Task East Fork Indian Creek 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
East Fork Indian Creek	2/2/2022	MB, AP, KG	Live Staking	330	Stem	Live staked in an alternating grid pattern along the stream edge.
East Fork Indian Creek	2/9/2022	MB, AP, KG	Live Staking	590	Stem	Live staked in an alternating grid pattern along the stream edge.
East Fork Indian Creek	2/10/2022	MB, KG, NN	Live Staking	590	Stem	Live staked in an alternating grid pattern along the stream edge.
East Fork Indian Creek	2/11/2022	MB, KG, NN	Live Staking	320	Stem	Live staked in an alternating grid pattern along the stream edge.
East Fork Indian Creek	2/21/2022	MB, KG, NN	Live Staking	750	Stem	Live staked in an alternating grid pattern along the stream edge.
East Fork Indian Creek	2/24/2022	MB, KG, NN	Live Staking	830	Stem	Live staked in an alternating grid pattern along the stream edge.
East Fork Indian Creek	2/28/2022	MB, KG, NN	Live Staking	950	Stem	Live staked in an alternating grid pattern along the stream edge.
East Fork Indian Creek	3/1/2022	MB, KG, NN	Live Staking	340	Stem	Live staked in an alternating grid pattern along the stream edge.
East Fork Indian Creek	3/15/2022	MB, KG, NN	Planting Bareroot Trees	1000	Stem	Planted bareroot trees in a grid pattern in repaired areas.
East Fork Indian Creek	3/16/2022	MB, KG, NN	Planting Bareroot Trees	3500	Stem	Planted bareroot trees in a grid pattern in repaired areas.
East Fork Indian Creek	3/17/2022	MB, KG, NN	Planting Bareroot Trees	800	Stem	Planted bareroot trees in a grid pattern in repaired areas.
East Fork Indian Creek	3/18/2022	MB, KG, NN	Planting Bareroot Trees	800	Stem	Planted bareroot trees in a grid pattern in repaired areas.
East Fork Indian Creek	3/21/2022	MB, KG, NN, ZF	Planting Bareroot Trees	700	Stem	Planted bareroot trees in a grid pattern in repaired areas.
East Fork Indian Creek	3/22/2022	MB, KG, NN, ZF	Planting Bareroot Trees	1100	Stem	Planted bareroot trees in a grid pattern in repaired areas.
East Fork Indian Creek	4/19/2022	MB, KG, NN, ZF	Planting Container Trees	86	Container	Planted 3-gallon container trees in repaired areas.
East Fork Indian Creek	4/20/2022	MB, KG, NN, ZF	Planting Container Trees	91	Container	Planted 3-gallon container trees in repaired areas.

Ross Creek 1 & 2:

Efforts at Ross Creek 1 & 2 began in early April with bareroot planting on April 6-7, 2022. Teams of four planted 1,000 total stems of a mixture of northern red oak, riverbirch, buttonbush, and persimmon. Invasive treatment then became the focus from May 11 to October 13, 2022. FILO deployed in teams of three or four to remove invasives via backpack sprayer and 25-gallon UTV sprayers seven times throughout the foliar spray season. Two team members returned on December 9, 2022 to remove a beaver dam that was diverting the flow from the main channel.

Table 32. Completed Maintenance Task Ross Creek 1 & 2 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Ross Creek 1 & 2	4/6/2022	MB, KG, NN, ZF	Planting Bareroot Trees	500	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.
Ross Creek 1 & 2	4/7/2022	MB, KG, NN, ZF	Planting Bareroot Trees	500	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.
Ross Creek 1 & 2	5/11/2022	MB, KG, LC, ZF	Invasive Treatment	27	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Ross Creek 1 & 2	6/1/2022	KG, ZF, NN, LC	Invasive Treatment	39	Gallon	Foliar sprayed 3% Glyphosate via backpack and 25-gallon sprayer in the riparian zone.
Ross Creek 1 & 2	6/20/2022	KG, NN, LC	Invasive Treatment	7	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Ross Creek 1 & 2	6/23/2022	KG, NN, LC	Invasive Treatment	15	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Ross Creek 1 & 2	6/27/2022	KG, NN, LC	Invasive Treatment	17.5	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Ross Creek 1 & 2	6/28/2022	KG, NN, LC	Invasive Treatment	36	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Ross Creek 1 & 2	10/13/2022	KG, MB, LC	Invasive Treatment	41	Gallon	Foliar sprayed 5% Glyphosate via backpack and 25-gallon sprayer.
Ross Creek 1 & 2	12/9/2022	KG, BB	Beaver Dam Removal	1	Dam	Removed beaver dams that were diverting flow from the main channel.
Gallon** represents the amount of the diluted chemical used to treat the invasive species.						

Lower Kentucky River Service Area:

Minor's Creek:

The live staking effort at Minor's Creek took place on February 23 and March 4, 2022. A team of three people planted 280 total stems, which were a mixture of sandbar willow, ninebark, red-osier dogwood, silky dogwood, and buttonbush species. Bareroot planting in teams of three began shortly after that from March 8 to March 14, 2022. The focus was to bring up shrub stem counts by planting roughleaf dogwood and buttonbush. FILO started invasive treatment using backpack sprayers on April 25 and visited four times in teams of four through May 26, 2022.

Table 33. Completed Maintenance Task Minor's Creek 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Minor's Creek	2/23/2022	MB, KG, NN	Live Staking	100	Stem	Live staked floodplain erosion areas in a tight alternating grid pattern.
Minor's Creek	3/4/2022	MB, KG, NN	Live Staking	180	Stem	Live staked floodplain erosion areas in a tight alternating grid pattern.
Minor's Creek	3/8/2022	MB, KG, NN	Planting Bareroot Trees	1000	Stem	Suplimental planted bareroot shrubs on tribs 7 and 9.
Minor's Creek	3/14/2022	MB, KG, NN	Planting Bareroot Trees	600	Stem	Suplimental planted bareroot shrubs on tribs 7 and 9.
Minor's Creek	4/25/2022	MB, KG, NN, ZF	Invasive Treatment	44	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Minor's Creek	5/9/2022	KG, NN, ZF, LC	Invasive Treatment	42	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Minor's Creek	5/23/2022	KG, ZF, NN, LC	Invasive Treatment	40	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Minor's Creek	5/26/2022	KG, ZF, NN, LC	Invasive Treatment	33	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Gallon** represents the amount of the diluted chemical used to treat the invasive species.						

Red Oak Creek Tributary C:

Red Oak Tributary C was visited March 25-27, 2022 where teams of four planted a total of 1,800 bareroot trees of the following species: roughleaf dogwood, northern red oak, riverbirch, and buttonbush. A team of three also planted 20 container trees, five each of tulip poplar, northern red oak, black cherry, and sweetgum, on April 18, 2022. Lastly, invasive species were foliar sprayed via backpack sprayer by a team of three on June 15, 2022.

Table 34. Completed Maintenance Task Red Oak Tributary C 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Red Oak Creek Tributary C	3/25/2022	MB, KG, NN, ZF	Planting Bareroot Trees	400	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.
Red Oak Creek Tributary C	3/26/2022	MB, KG, NN, ZF	Planting Bareroot Trees	800	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.
Red Oak Creek Tributary C	3/27/2022	MB, KG, NN, ZF	Planting Bareroot Trees	600	Stem	Suplimental planted bareroot trees in the areas that were not meeting USACE standards.
Red Oak Creek Tributary C	4/18/2022	KG, NN, ZF	Planting Container Trees	20	Container	Planted gallon container trees in repaired areas.
Red Oak Creek Tributary C	6/15/2022	KG, NN, LC	Invasive Treatment	28	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Gallon** represents the amount of the diluted chemical used to treat the invasive species.						

Roger's Gap:

Roger's Gap was visited by a team of four and a team of five respectively on April 27 and May 12, 2022. We foliar sprayed invasive species using a backpack sprayer.

Table 35. Completed Maintenance Task Roger's Gap 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Roger's Gap	4/27/2022	MB, KG, NN, ZF	Invasive Treatment	39	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Roger's Gap	5/12/2022	KG, ZF, NN, LC, MB	Invasive Treatment	45	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Gallon** represents the amount of the diluted chemical used to treat the invasive species.						

Lower Cumberland River Service Area:

Hatchery Creek:

In 2022, maintenance at Hatchery Creek focused on removing beaver dams. Our team visited the site approximately once a month from March thru July to remove any dams observe on both the upstream and downstream sections of the creek. FILO staff were able to observe a decline in the number of dams that were rebuilt between monthly visits and did not have to check as frequently in the subsequent months. Removal of beaver dams is not a typical mitigation maintenance activity unless the height or prevalence of dams negatively impacts goals and objectives as the site matures post construction.

Table 36. Completed Maintenance Task Hatchery Creek 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Hatchery Creek	3/3/2022	MB, KG, NN	Beaver Dam Removal	10	Dam	Removed beaver dams that were diverting flow from the main channel.
Hatchery Creek	4/11/2022	MB, KG, NN, ZF	Beaver Dam Removal	5	Dam	Removed beaver dams that were diverting flow from the main channel.
Hatchery Creek	5/10/2022	LC, NN	Beaver Dam Removal	4	Dam	Removed beaver dams that were diverting flow from the main channel.
Hatchery Creek	6/2/2022	KG, ZF, NN, LC	Beaver Dam Removal	5	Dam	Removed beaver dams that were diverting flow from the main channel.
Hatchery Creek	7/25/2022	KG, NN	Beaver Dam Removal	2	Dam	Removed beaver dams that were diverting flow from the main channel.
Hatchery Creek	11/1/2022	KG, MB	Beaver Dam Removal	1	Dam	Removed beaver dams that were diverting flow from the main channel.
Hatchery Creek	12/28/2022	BB, WR, BW	Beaver Dam Removal	2	Dam	Removed beaver dams that were diverting flow from the main channel.

Green River Service Area:

Higginson-Henry WMA:

Invasive treatment at Higginson-Henry WMA focused on treating kudzu. FILO visited the site as a team of three on August 25, 2022 and used both backpack sprayers and 25-gallon UTV sprayers. FILO revisited with the same team on October 17, 2022, to continue treating the kudzu via backpack sprayers.

Table 37. Completed Maintenance Task Higginson-Henry WMA 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Higginson-Henry WMA	8/25/2022	KG, MB, LC	Invasive Treatment	62	Gallon	Foliar sprayed 3% Glyphosate via backpack and 25-gallon sprayer.
Higginson-Henry WMA	10/17/2022	KG, MB, LC	Invasive Treatment	27	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer.
Gallons** represents the amount of the diluted chemical used to treat the invasive species.						

Trammel Creek:

Maintenance first occurred at Trammel Creek on April 28, 2022, with invasive treatment being the focus. A team of six worked on both foliar spraying with backpacks as well as using cut stump techniques on Bradford pear and tree of heaven. Container tree planting took place on November 16 and November 18, 2022, where teams of four or five planted a mixture of red oak, red maple, shellbark hickory, and sweetgum. 1,500 bareroot trees were planted by teams of four on December 13 and December 20, 2022. FILO planted a variety of the following species: pin oak, Shumard oak, black cherry, persimmon, and bur oak.

Table 38. Completed Maintenance Task Trammel Creek 2022

Completed Maintenance Task List 2022						
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Type/Unit**	**Description**
Trammel Creek	4/28/2022	BWM, KG, NN, ZF	Invasive Treatment	24	Gallon	Foliar sprayed 3% Glyphosate via backpack sprayer in the riparian zone.
Trammel Creek	4/28/2022	MB, LC	Invasive Treatment	0.25	Gallon	Cut stump treated with 50% Glyphosate via chainsaw and backpack sprayer in the riparian zone.
Trammel Creek	11/16/2022	KG, MB, JC, WR, BB	Planting Container Trees	50	Container	Planted 3-gallon container trees in repaired areas.
Trammel Creek	11/18/2022	KG, LC, BB, WR	Planting Container Trees	50	Container	Planted 3-gallon container trees in repaired areas.
Trammel Creek	12/13/2022	KG, LC, BB, WR	Planting Bareroot Trees	800	Bareroot	Planted bareroot trees in a grid pattern in repaired areas.
Trammel Creek	12/20/2022	KG, MB, BB, WR	Planting Bareroot Trees	700	Bareroot	Planted bareroot trees in a grid pattern in repaired areas.
Gallon** represents the amount of the diluted chemical used to treat the invasive species.						

Appendix D – Completed Initial Physical and Biological Improvement (IPBI)

IPBI is a category created in the 2008 Mitigation Rule as a timing goal for implementation of mitigation projects for in-lieu-fee programs. Specifically, the 2008 Mitigation Rule states: Land Acquisition and initial physical and biological improvements must be completed by the third full growing season after the first advance credit in that service area is secured by a permittee, unless the district engineer determines that more or less time is needed to plan and implement an in-lieu fee project. Generally, that goal is to substantially begin projects by the end of the third full growing season following a credit sale, but more specifically to implement activities on a mitigation site that have a direct tie to improvement of physical or biological habitat. This is generally referred to as the '3-year rule.' Exactly which activities qualify for IPBI is not well defined; however, in order to comply with the rule and the IPBI goal, the FILO program initiates all activities allowed as soon as possible. Many mitigation activities require disturbance of the ground, which is not permissible until after several formal time-consuming procedures are completed, for example: land acquisition, concurrence with threatened and endangered species regulations, concurrence with archaeological and historic regulations, and state and federal jurisdictional waters regulations. All of these activities require highly qualified professionals to investigate and survey and report about the mitigation sites prior to regulatory review. However, many significantly important activities that are closely linked to habitat rehabilitation and mitigation practices remain for IPBI that do not require the full complement of surveys, reviews and concurrences. Most notable are treatment and removal of invasive herbaceous and woody vegetation, removal of livestock, conversion of the landscape away from agricultural practices, and elimination and/or control of human and vehicular activities (off-road or other recreational vehicles), to name a few. All FILO program projects receive all applicable treatments beginning as soon as the program has contractual right-of-way, or legal access. Those activities have not historically always been reported formally, but in recent years implementation and tracking of invasive vegetation removal has significantly improved. The reason for this focus is multi-layered. First it has the benefit of creating a reviewable report for a significant IPBI activity and compliance. Second, treatment and removal of invasive vegetation requires specific training and certification when certain chemicals and tools are utilized. Third, this activity requires a significant amount of staff and/or contractual agreements, at significant financial cost. Fourth, treatment of invasive vegetation is measurable and has well known links to physical and biological benefits to native ecology. In this appendix, there is a histogram summary of credits associated with IPBI activities and how that relates to the 3-year rule, followed by a summary and map of projects receiving IPBI for the first time, then a summary and map of projects

receiving subsequent IPBI activities. Most of these maps include a buffer around the riparian or wetland areas to show where invasive treatment or tree planting occurred, but when not specified, it can be assumed that the treatment occurred in areas where mitigation credits are proposed, then outward on the site as time and funding allows. Each project has a description, table of activities and a map.

Figure 16. Summary: CY22 Wetland 3-yr Status

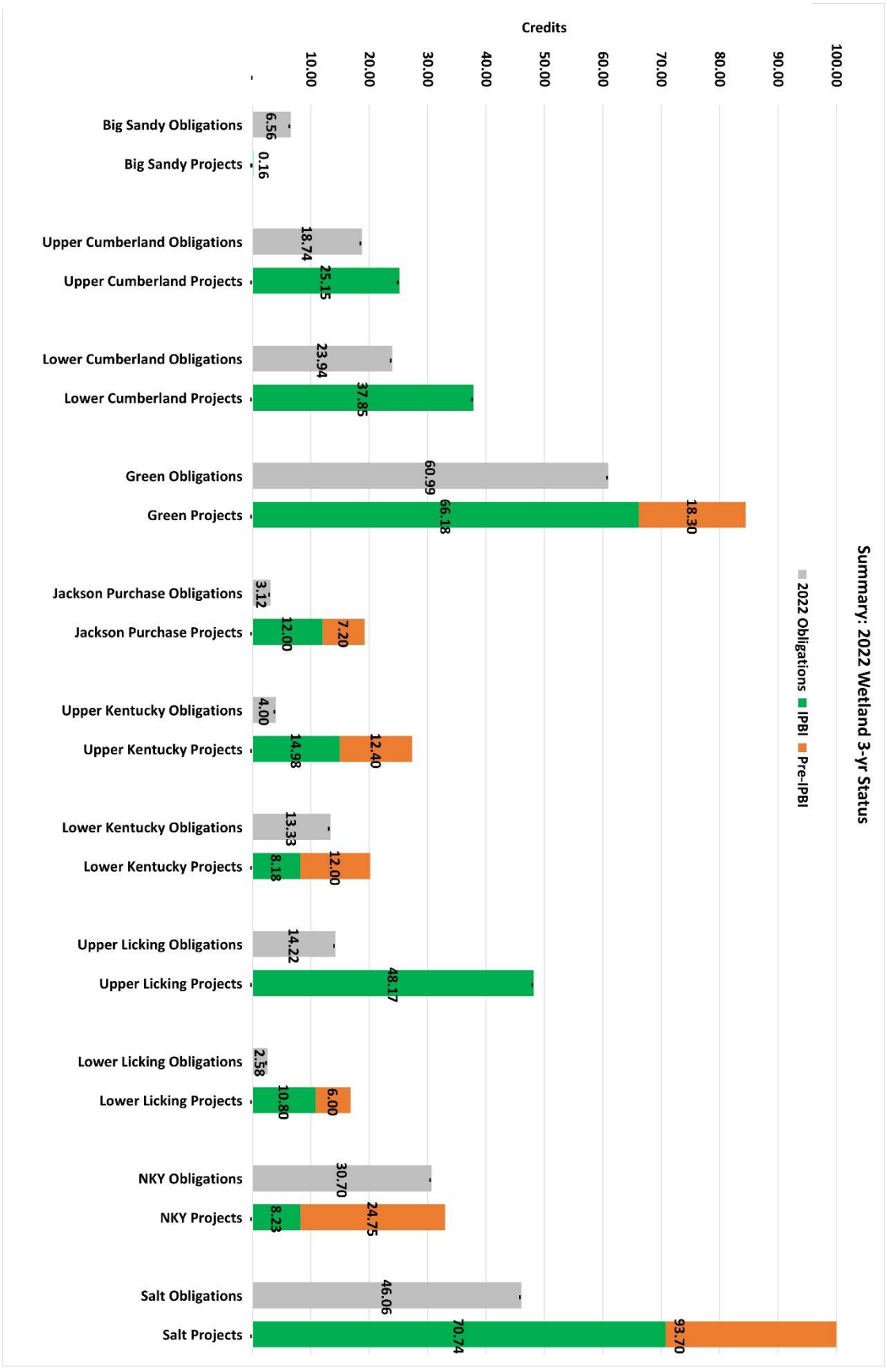


Figure 17. Summary: CY22 Stream 3-yr Status

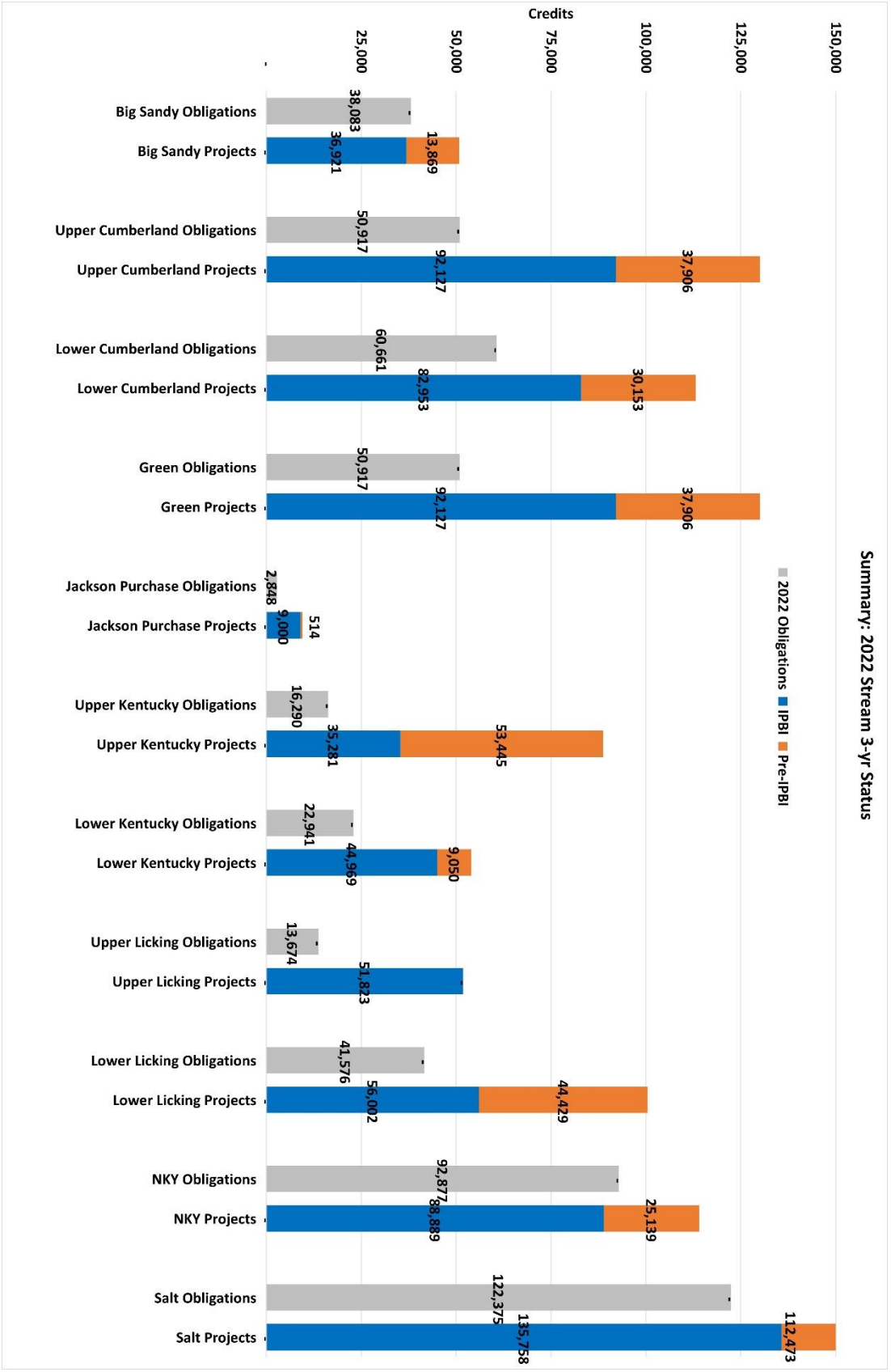
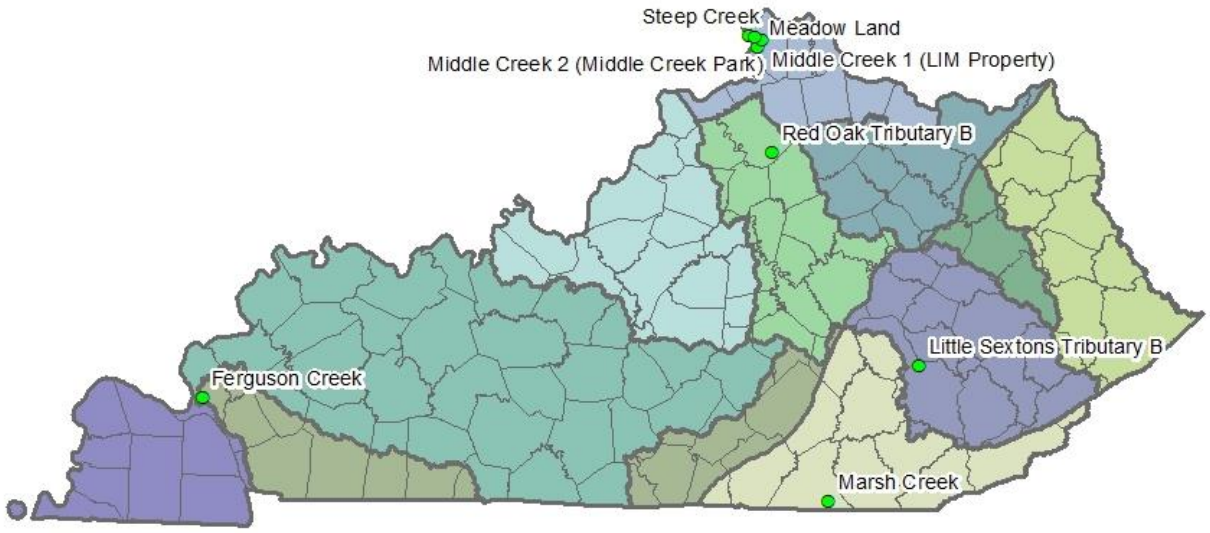


Table 39. Competed IPBI Initial Treatment Task List 2022 - Summary

2022 IPBI Summary Table						
Project Name	**USACE ID**	**Service Area**	**Site Protection**	**Approval Status**	**Project Task**	**IPBI Status**
2022 Initial Treatment						
Little Sextons Tributary B	LRL-2018-00981-pgj	Upper Kentucky	Protected	CP Approved	Invasive Treatment	Complete
Red Oak Tributary B	LRL-2018-00770.pgj	Lower Kentucky	Protected	CP Approved	Invasive Treatment	Complete
Steep Creek	LRL-2018-00383	Northern Kentucky	Protected	CP Approved	Invasive Treatment	Complete
Meadow Land	LRL-2020-00184	Northern Kentucky	Protected	CP Approved	Invasive Treatment	Complete
Middle Creek 1 (LIM Property)	LRL-2019-161	Northern Kentucky	Protected	CP Approved	Invasive Treatment	Complete
Middle Creek 2 (Middle Creek Park	LRL-2019-01052	Northern Kentucky	Protected	CP Approved	Invasive Treatment	Complete
Ferguson Creek	LRN-2018-00128	Lower Cumberland	Protected	CP Approved	Invasive Treatment	Complete
Marsh Creek	LRN-2022-00766	Upper Cumberland	Protected	CP Approved	Invasive Treatment	Complete

Figure 18. Statewide Summary of IPBI Sites 2022



Upper Kentucky River Service Area:

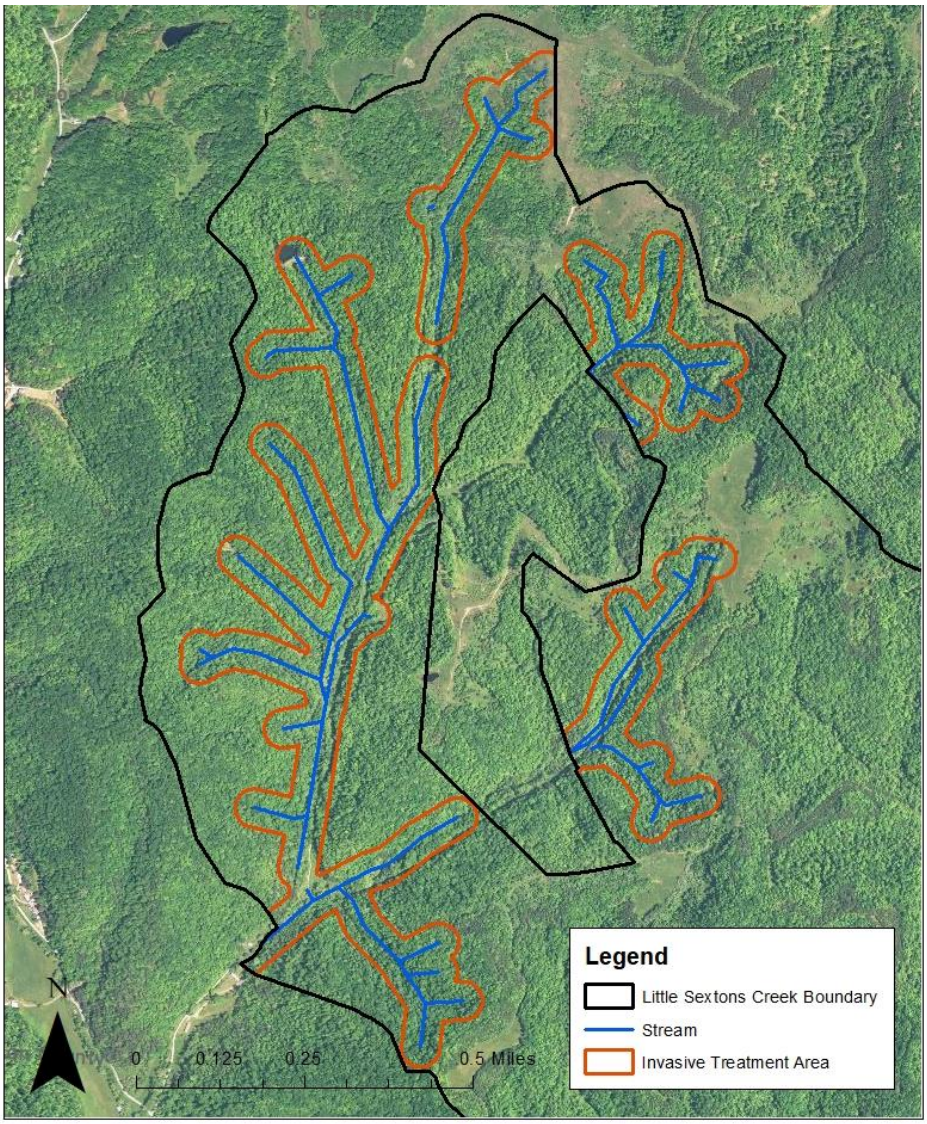
Little Sextons Tributary B:

FILO were able to focus treating Little Sextons Tributary B toward the end of foliar spray season on October 3 and October 6, 2022. Crews of two people and focused our efforts on foliar application using 25-gallon UTV sprayers along the access road. FILO staff were able to cover most of the area from the UTV, mainly encountering large amounts of Autumn olive and multiflora rose throughout the tributary. *Sericea lespedeza* was also encountered in moderate numbers.

Table 40. Competed IPBI Initial Treatment Task Little Sextons Tributary B 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Little Sextons Tributary B	10/3/2022	KG, MB	Foliar application of 5% Glyphosate.	50 gallons	Multiflora rose, Autumn olive, Sericea lespedeza
Little Sextons Tributary B	10/6/2022	KG, MB	Foliar application of 5% Glyphosate.	50 gallons	Multiflora rose, Autumn olive, Sericea lespedeza
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 19. Little Sextons Creek Trib. B Invasive Treatment 2022



Lower Kentucky River Service Area:

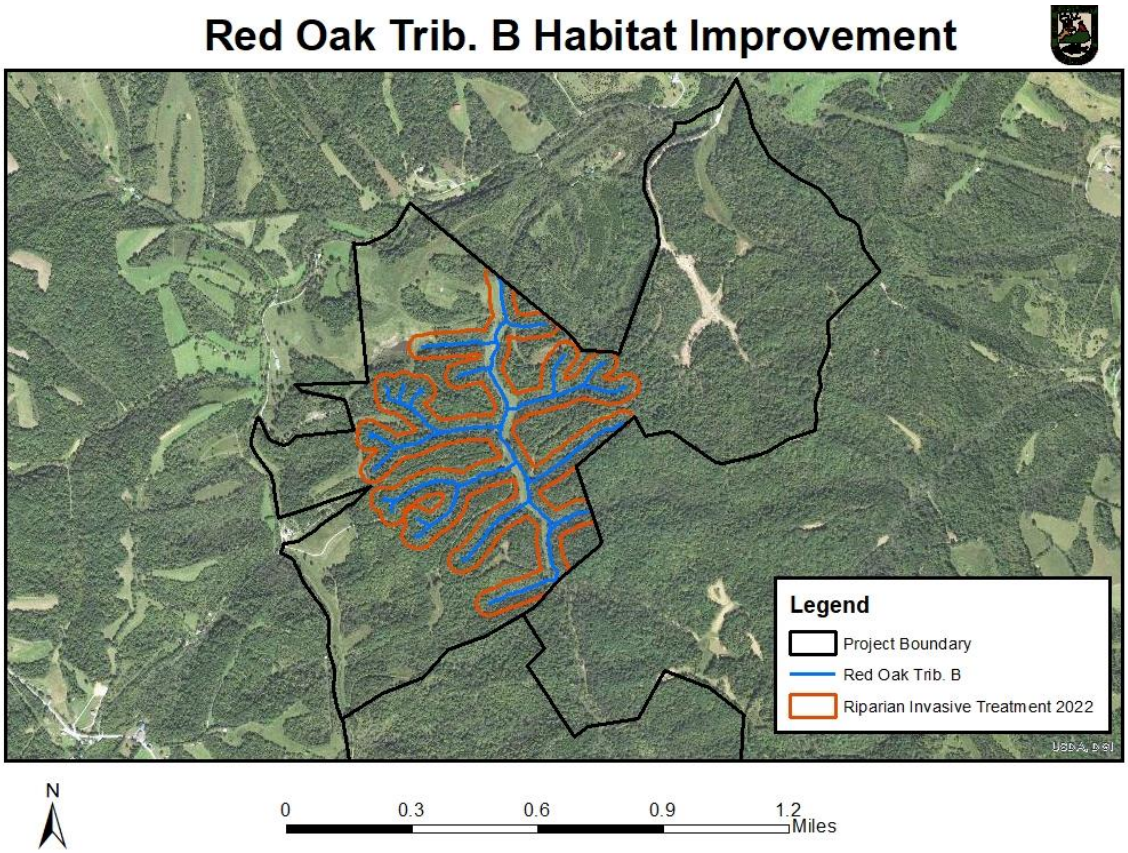
Red Oak Tributary B:

We focused on treating Red Oak Tributary B in late spring from June 3 to June 14, 2022. Our crew ranged from three to four people depending on the day and our efforts were focused on foliar spraying using both 25-gallon UTV sprayers and backpack sprayers. The 25-gallon sprayers were able to be used along the tributary and open field area where the main focus was spraying multiflora rose which had largely taken over the stream area. Backpack sprayers were used on the opposite side of the tributary to spray multiflora rose as well as within the field, focusing on thistle, teasel, and curly dock.

Table 41. Competed IPBI Initial Treatment Task Red Oak Tributary B 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Red Oak Tributary B	6/3/2022	KG, ZF, NN, LC	Foliar application of 3% Glyphosate.	55 gallons	Multiflora rose, Thistle, Curly dock, Teasel
Red Oak Tributary B	6/7/2022	KG, ZF, NN, LC	Foliar application of 3% Glyphosate.	61 gallons	Multiflora rose, Thistle, Curly dock, Teasel
Red Oak Tributary B	6/9/2022	KG, NN, LC	Foliar application of 3% Glyphosate.	30 gallons	Multiflora rose, Thistle, Curly dock, Teasel
Red Oak Tributary B	6/14/2022	KG, NN, LC	Foliar application of 3% Glyphosate.	22.5 gallons	Multiflora rose, Thistle, Curly dock, Teasel
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 20. Red Oak Trib. B Invasive Treatment 2022



Northern Kentucky Service Area:

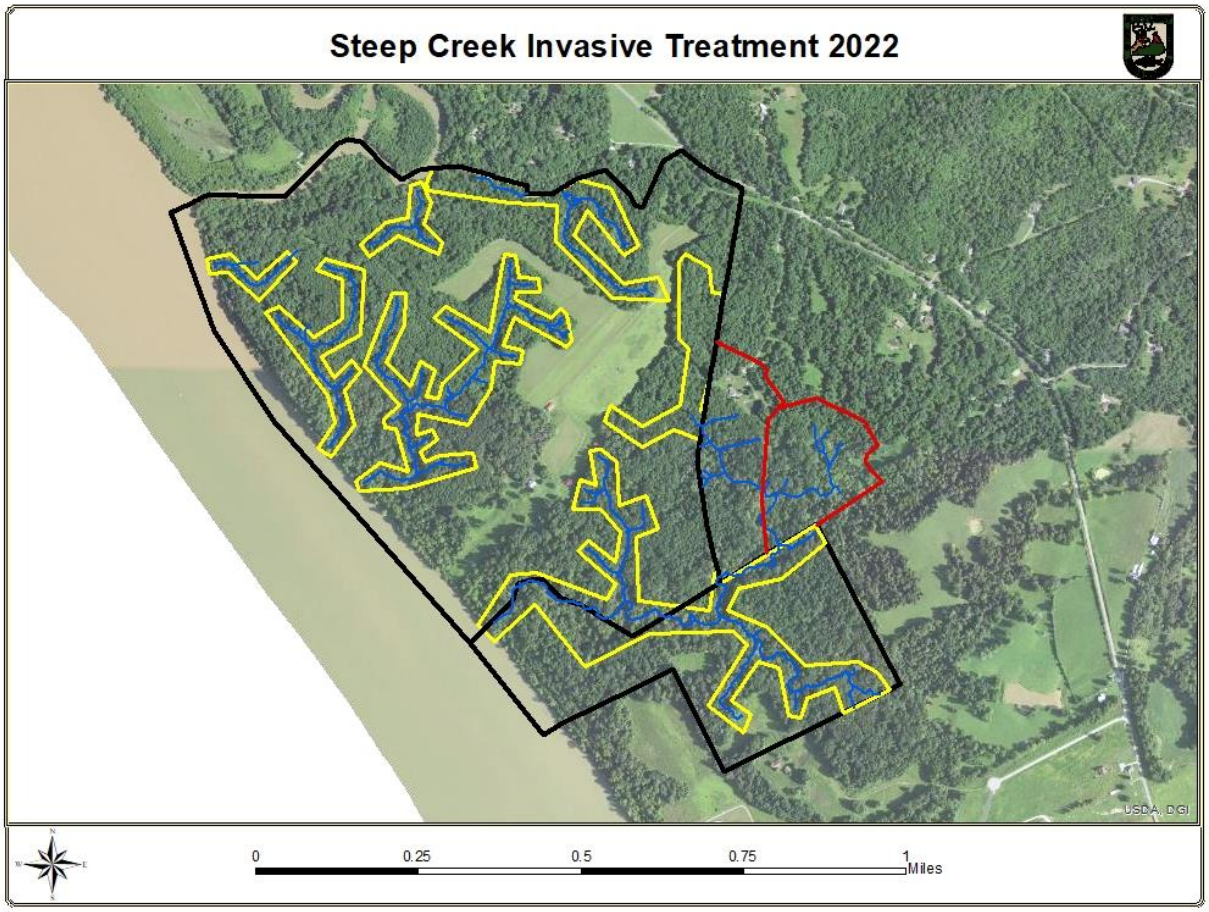
Steep Creek:

Steep Creek was treated toward the end of summer and beginning of fall, September 13 through September 29, 2022. FILO went out in teams of two or three using backpack sprayers. Along the high gradient tributaries fewer invasive species were encountered with a few patches of bush honeysuckle, multiflora rose, and Japanese stilt grass being sprayed. The lower regions contained more multiflora rose as well as bush honeysuckle, so that is where the majority of the efforts were focused.

Table 42. Competed IPBI Initial Treatment Task Steep Creek 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Steep Creek	9/13/2022	KG, MB	Foliar application of 3% Glyphosate.	3 gallons	Multiflora rose, Japanese stilt grass, Bush honeysuckle
Steep Creek	9/14/2022	KG, MB, LC	Foliar application of 3% Glyphosate.	28.5 gallons	Multiflora rose, Japense stilt grass, Bush honeysuckle
Steep Creek	9/29/2022	KG, MB	Foliar application of 3% Glyphosate.	6 gallons	Multiflora rose, Japanese stilt grass, Bush honeysuckle
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 21. Steep Creek Invasive Treatment 2022



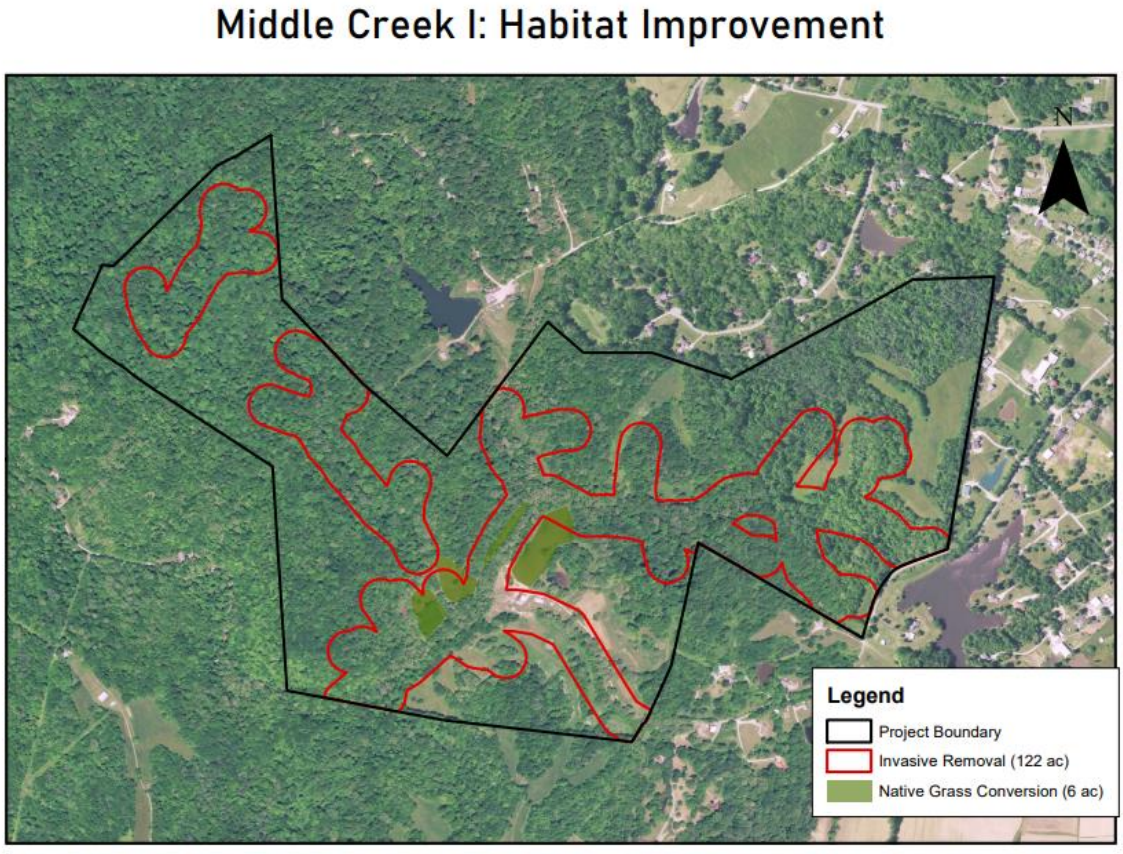
Middle Creek I (LIM Property):

Middle Creek I (LIM Property) had both a summer and fall treatment. The summer treatment occurred on July 13 and July 18, 2022. A team of two was present on both days. There was an issue with hornets at this site which is why not much foliar application was able to occur in the summer months. Both July days involved using backpack sprayers along the creek where we mainly experienced large amount of multiflora rose and bush honeysuckle. Smaller amounts of curly dock were also sprayed in the open areas along the creek. FILO began fall treatment on October 27, 2022 and finished up on November 8, 2022. Teams ranged between two to six people depending on the day. FILO staff spent several days doing cut stump, focusing mainly on bush honeysuckle with autumn olives scattered throughout. The bush honeysuckle took up most of our efforts because honeysuckle occupied a good portion of the riparian area.

Table 43. Competed IPBI Initial Treatment Task Middle Creek I (LIM Property) 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Middle Creek 1 (LIM Property)	7/13/2022	KG, NN	Foliar application of 3% Glyphosate.	3 gallons	Multiflora rose, Bush honeysuckle, Curly dock
Middle Creek 1 (LIM Property)	7/18/2022	LC, NN	Foliar application of 3% Glyphosate.	17 gallons	Multiflora rose, Bush honeysuckle, Curly dock
Middle Creek 1 (LIM Property)	10/27/2022	KG, MB	Cut stump of 50% Glyphosate.	2 gallons	Bush honeysuckle
Middle Creek 1 (LIM Property)	11/2/2022	KG, MB, LC, JC, BWM, JB	Cut stump of 50% Glyphosate.	9 gallons	Bush honeysuckle, Autumn olive
Middle Creek 1 (LIM Property)	11/3/2022	KG, MB	Cut stump of 50% Glyphosate.	2 gallons	Bush honeysuckle
Middle Creek 1 (LIM Property)	11/8/2022	KG, MB, LC, WR	Cut stump of 50% Glyphosate.	4 gallons	Bush honeysuckle, Autumn olive
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 22. Middle Creek I Invasive Treatment 2022



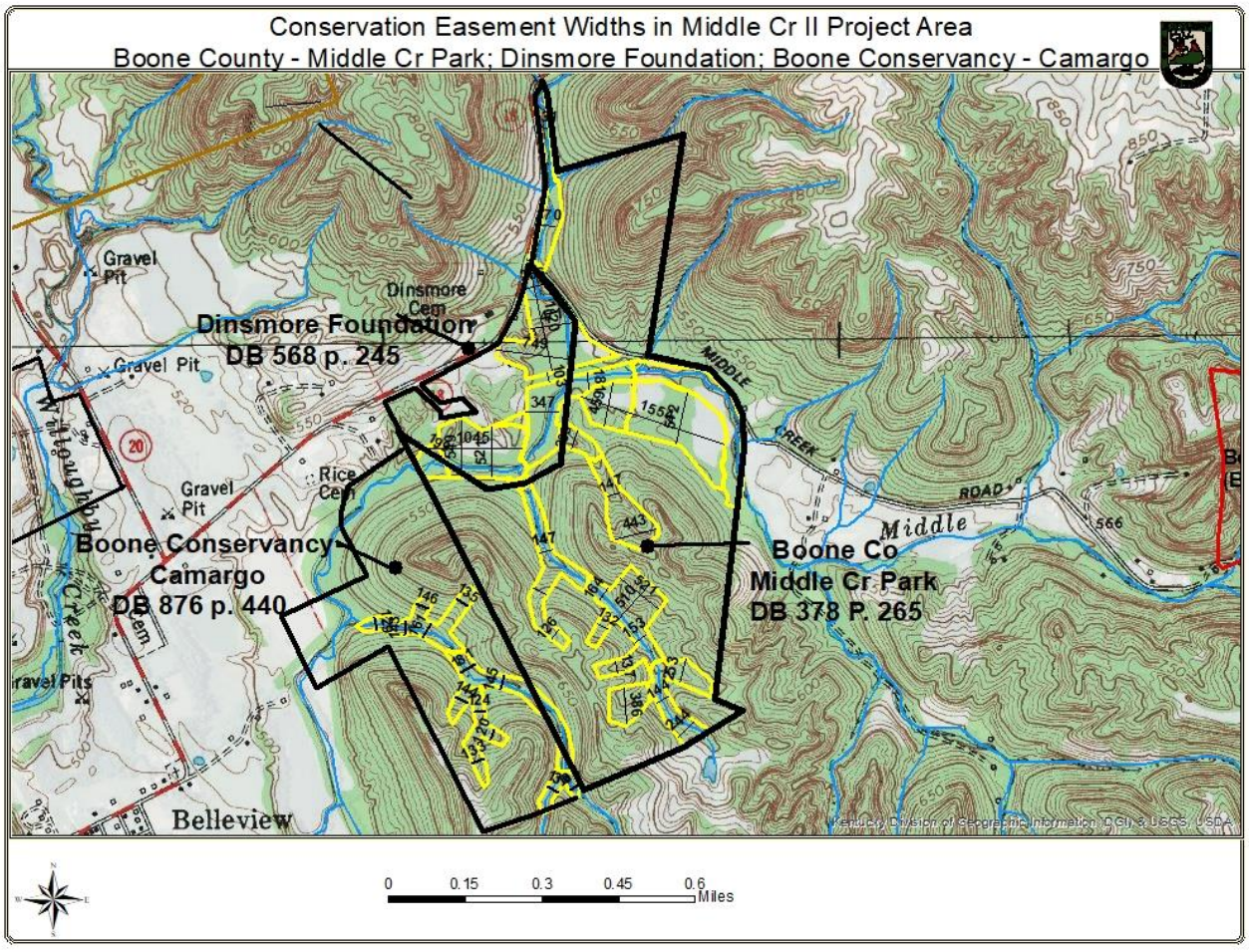
Middle Creek II (Middle Creek Park):

Middle Creek II (Middle Creek Park) was visited on November 30, and December 29, 2022. FILO had a team of four that completed cut stump treatment. The park did some invasive species control prior to us acquiring easements, therefore bush honeysuckle, Autumn olive, and burning bush that remained was less prevalent than other Middle Creek project sites.

Table 44. Competed IPBI Initial Treatment Task Middle Creek 2 (Middle Creek Park) 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Middle Creek II (Park)	11/30/2022	KG, MB, WR, BB	Cut stump of 50% Glyphosate.	4 gallons	Bush honeysuckle, Autumn olive, Burning bush
Middle Creek II (Park)	12/29/2022	MB, BB, TVA, BW	Cut stump of 50% Glyphosate.	3 gallons	Bush honeysuckle, Autumn olive, Burning bush
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 23. Middle Creek II Invasive Treatment 2022



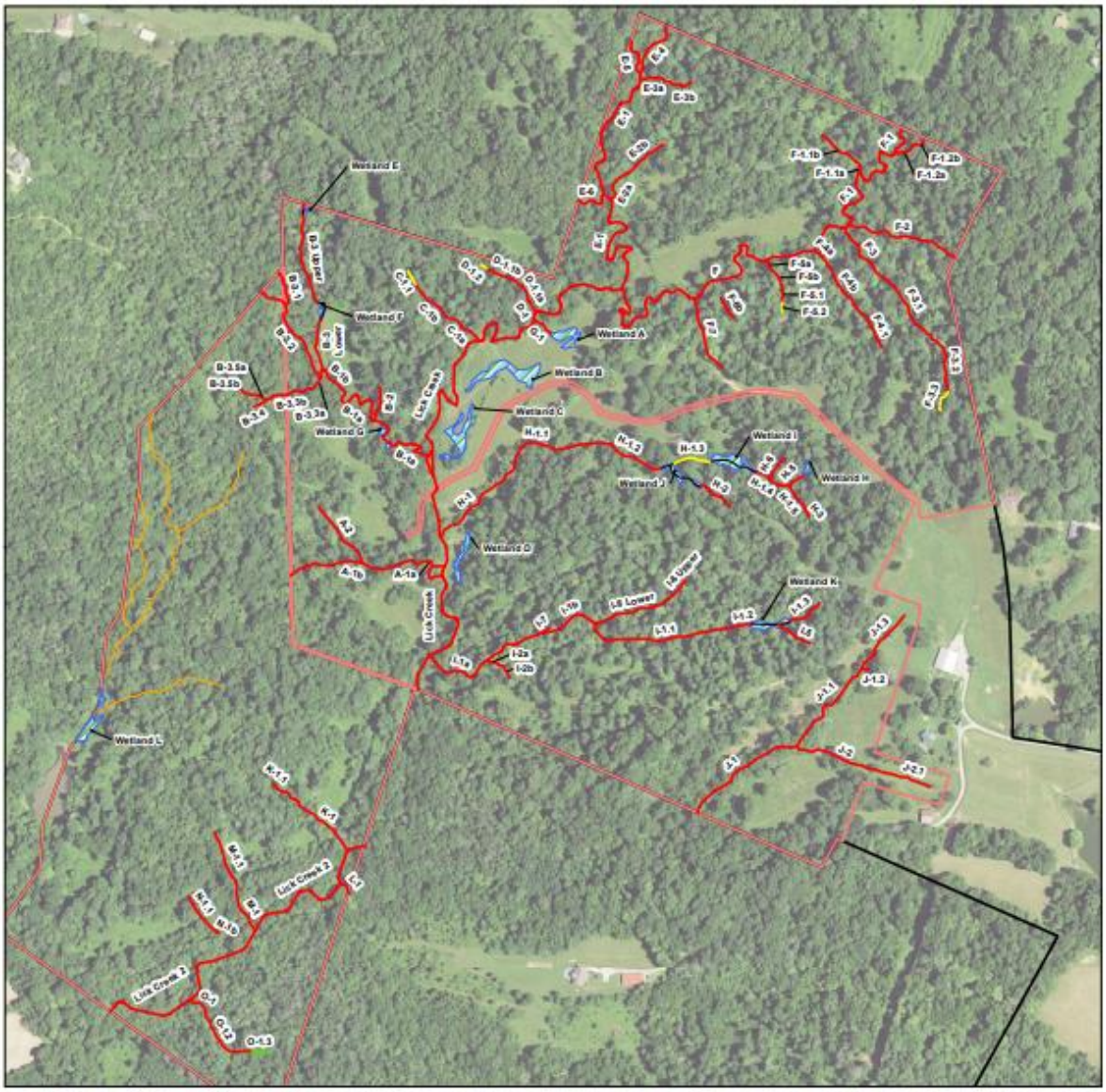
Meadowland:

FILO focused on treating Meadowland from November 9 to November 29, 2022. FILO staff went out in teams of four to complete cut stump treatments. The site was dense with bush honeysuckle with some Autumn olives and burning bushes scattered throughout. There were also a few large multiflora rose bushes that were able to be cut and treated, but the bush honeysuckle was the main focus.

Table 45. Completed IPBI Initial Treatment Task Meadowland 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Meadowland	11/9/2022	KG, MB, LC, WR	Cut stump of 50% Glyphosate.	4 gallons	Bush honeysuckle, Autumn olive
Meadowland	11/28/2022	KG, MB, WR, BB	Cut stump of 50% Glyphosate.	4 gallons	Bush honeysuckle, Autumn olive, Burning bush
Meadowland	11/29/2022	KG, MB, WR, BB	Cut stump of 50% Glyphosate.	3 gallons	Bush honeysuckle, Multiflora rose
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 24. Meadowland Invasive Treatment 2022



Upper Cumberland River Service Area:

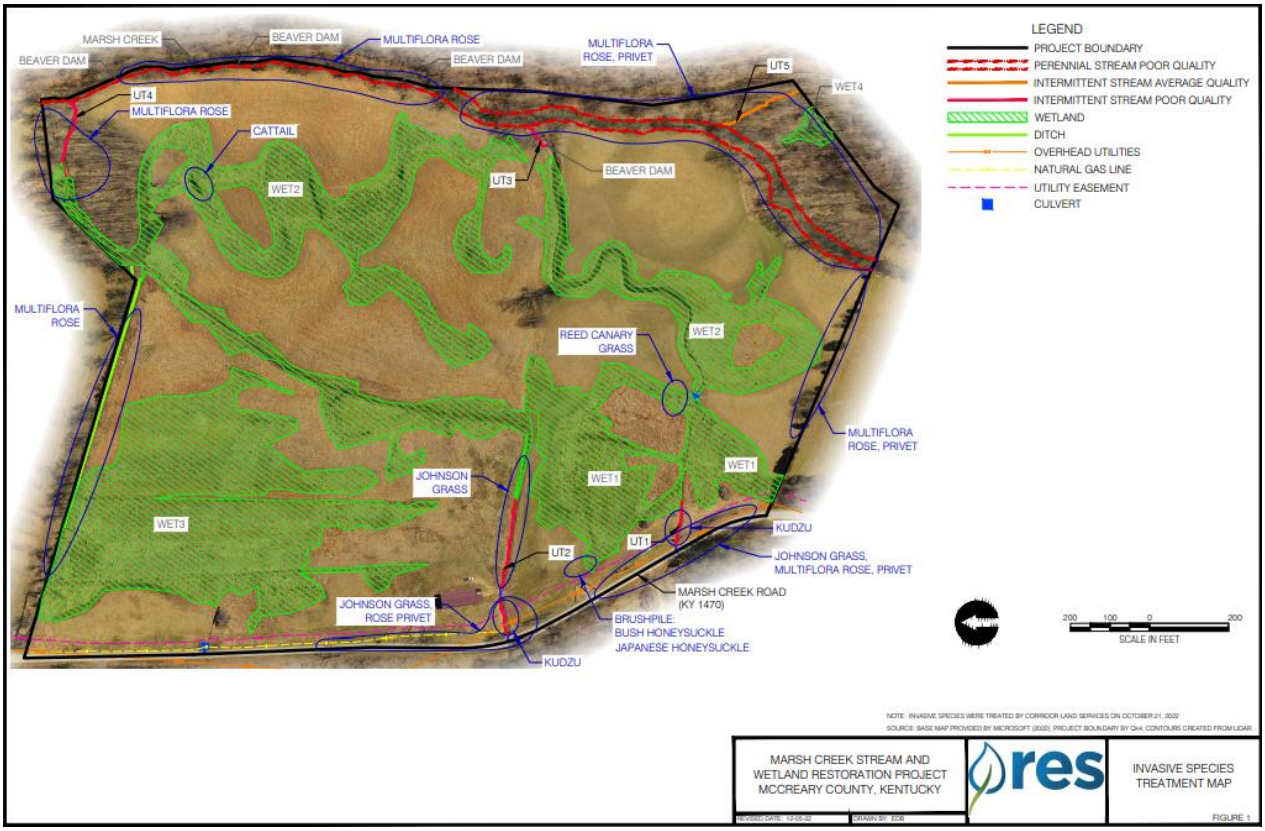
Marsh Creek:

Via our Full Delivery contract with RES, Corridor Land Services (CLS) treated Marsh Creek on October 21, 2022. Due to previous agricultural land uses, the treatment focus was on the multiflora rose found on the edges of the property and along both stream banks. CLS used both backpack and UTV sprayers during the treatment. Other species such as Chinese privet, bush honeysuckle, Japanese honeysuckle, kudzu, Johnson grass, cattail, and reed canary grass were also treated, as shown on the map below.

Table 46. Completed IPBI Initial Treatment Task Marsh Creek 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Marsh Creek	10/21/2022	CLS	Foliar application of 2% Glyphosate.	43 gallons	Multiflora rose, Chinese privet, Kudzu, Johnson grass, Bush honeysuckle, Japanese honeysuckle, Reed canary grass, Cattail
CLS* Corridor Land Services is a qualified herbicide applicator used by RES Kentucky, LLC					
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 25. Marsh Creek Invasive Treatment 2022



Lower Cumberland River Service Area:

Ferguson Creek:

Ferguson Creek was visited on August 24, 2022. As a team of three, FILO staff used backpack sprayers and walked throughout the wetland and discovered that though prevalent, the site was not overly dominated by invasive vegetation. There were patches of cattail, multiflora rose, *Sericea lespedeza*, and Johnson grass scattered throughout the wetland that were treated.

Table 47. Completed IPBI Initial Treatment Task Ferguson Creek 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Ferguson Creek	8/24/2022	KG, LC, MB	Foliar application of 3% Glyphosate.	4.5 gallons	Cattail, Multiflora rose, Thistle, Sericea lespedeza, Johnson grass
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 26. Ferguson Creek Invasive Treatment 2022

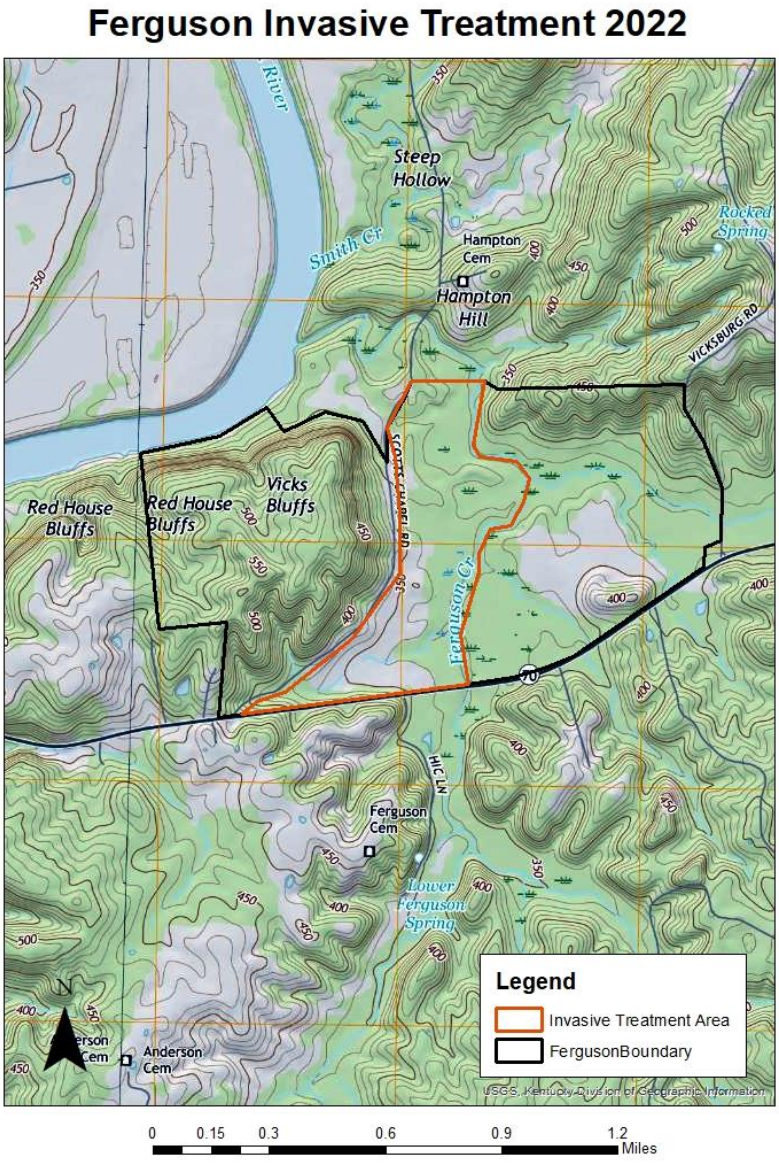
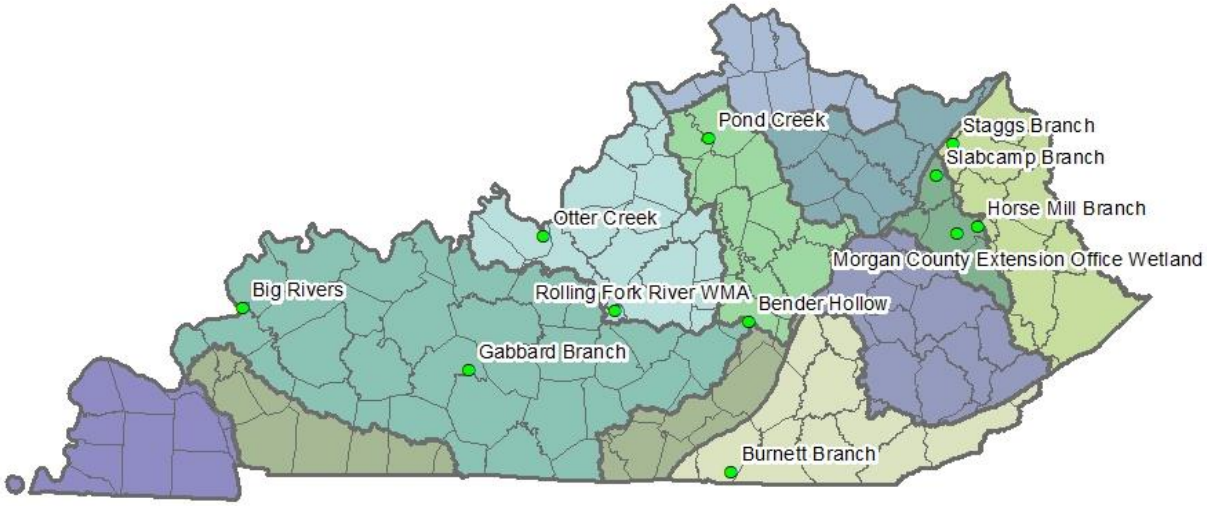


Table 48. Competed IPBI Retreatment Task List 2022 - Summary

2022 IPBI Summary Table						
Project Name	USACE ID	Service Area	Site Protection	Approval Status	Project Task	IPBI Status
2022 Retreatment Compliance						
Staggs Branch	LRL-2016-153-pgj	Big Sandy	Protected	CP Approved	Invasive Treatment	Complete
Morgan County Extension Office Wetland	LRL-2018-682	Upper Licking	Protected	CP Approved	Invasive Treatment	Complete
Horse Mill Branch	LRL-2018-100	Upper Licking	Protected	CP Approved	Invasive Treatment	Complete
Slabcamp Branch	LRL-2018-00562	Upper Licking	Protected	CP Approved	Invasive Treatment	Complete
Pond Creek	LRL-2014-191.pgj	Lower Kentucky	Protected	CP Approved	Planting	Complete
Rolling Fork River WMA	LRL-2020-00631-pgj	Salt	Protected	CP Approved	Invasive Treatment	Complete
Otter Creek	LRL-2013-425.pgj	Salt	Protected	CP Approved	Invasive Treatment	Complete
Bender Hollow	LRL-2018-00982-pgj	Green	Protected	CP Approved	Invasive Treatment	Complete
Gabbard Branch	LRL-2020-00169	Green	Protected	CP Approved	Invasive Treatment	Complete
Big Rivers	LRL-2016-00373-pgj	Green	Protected	CP Approved	Invasive Treatment	Complete
Burnett Branch	LRN-2013-00116	Upper Cumberland	Protected	CP Approved	Invasive Treatment	Complete

Figure 27. Statewide Summary of Retreatment IPBI Sites 2022



Upper Licking River Service Area:

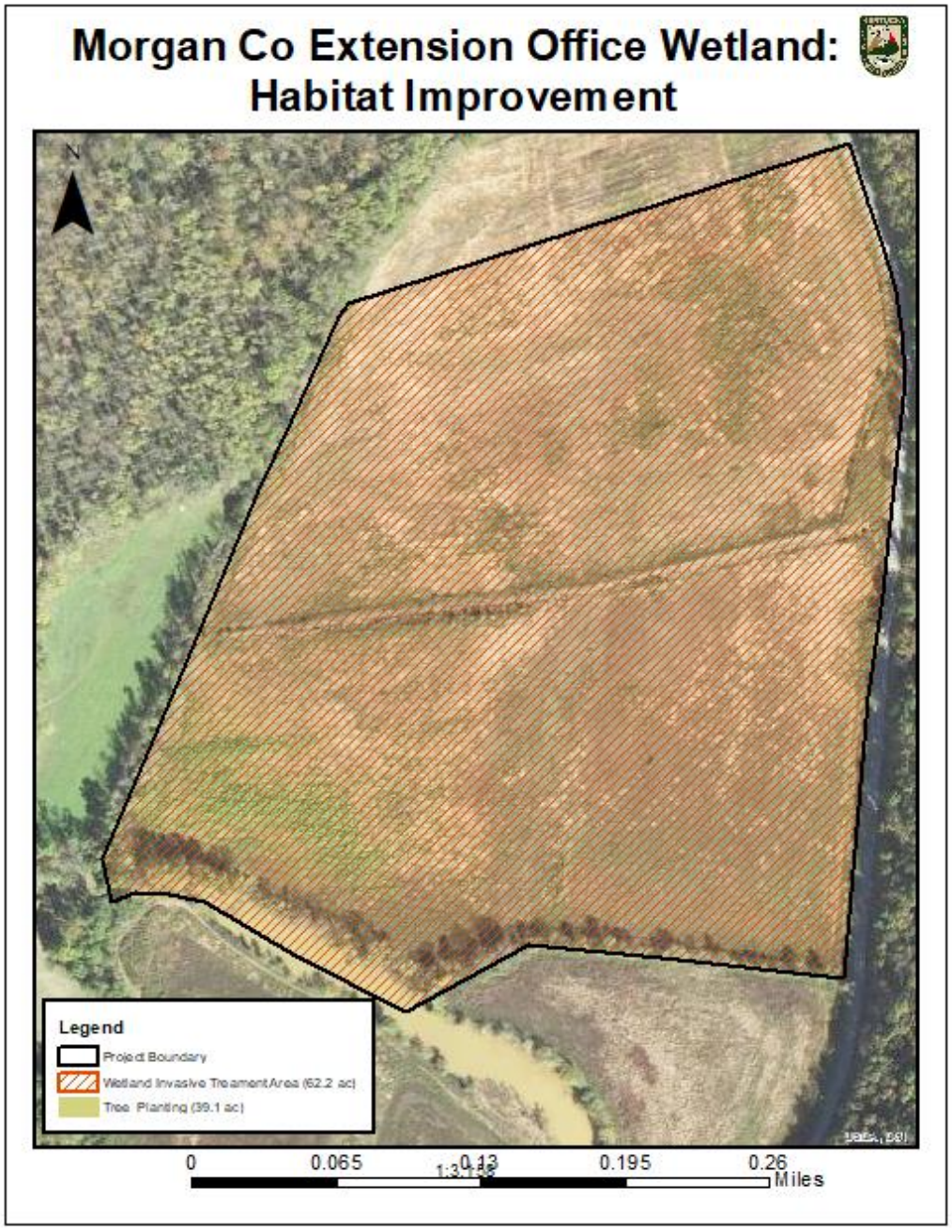
Morgan County Extension Office Wetland:

FILO focused on treating the Morgan Count Extension Office Wetland again on September 12 and October 4, 2022. FILO had a crew of two people and utilized 25-gallon UTV sprayers to spray the invasive species present along the creek and in the wetland. The main focus was thick patches of knotweed along the creek. FILO staff were able to treat a thick strip of knotweed on September 12 and that allowed us to access and treat more on October 4. Although knotweed was the main issue, we also treated multiflora rose, autumn olives, and multiple patches of *Sericea lespedeza* and Johnson grass.

Table 49. Completed IPBI Retreatment Task MEOW 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Morgan County Extension Office Wetland	9/12/2022	KG, MB	Foliar application of 5% Glyphosate.	75 gallons	Japanese knotweed, Multiflora rose, Sericea lespedeza, Johnson grass, Autumn olive
Morgan County Extension Office Wetland	10/4/2022	KG, MB	Foliar application of 5% Glyphosate.	19 gallons	Japanese knotweed, Multiflora rose, Sericea lespedeza, Johnson grass, Autumn olive
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 28. MEOW Invasive Retreatment 2022



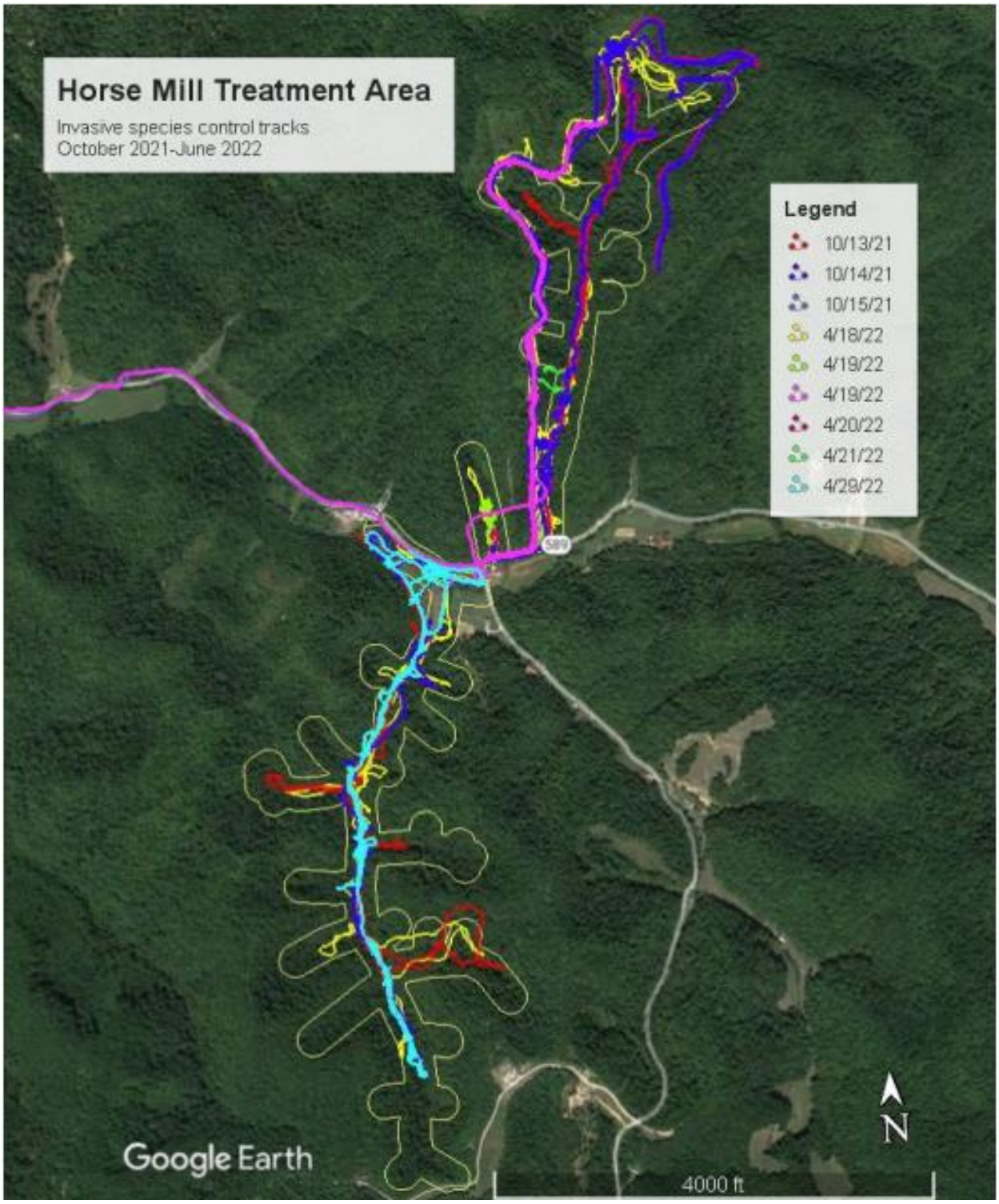
Horse Mill Branch:

A crew of three to four people from Cardno visited Horse Mill Branch several times from April 18 to April 29, 2022. Cardno completed both foliar and basal applications, focusing on Bradford pear, Autumn olive, Japanese honeysuckle, multiflora rose, bush honeysuckle, and Japanese stilt grass. They spent time treating the majority of the site, but we visited again on October 4, 2022 as a team of two to focus on spraying a patch of knotweed near the back of the site. FILO also sprayed multiflora rose and Autumn olive, along the access road.

Table 50. Completed IPBI Retreatment Task Horse Mill Branch 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Horse Mill Branch	4/18/2022	Cardno	Foliar application of 4% Glyphosate.	2.5 gallons	Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass
Horse Mill Branch	4/19/2022	Cardno	Foliar application of 4% Triclopyr/Garlon 3A.	1.5 gallons	Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass
Horse Mill Branch	4/19/2022	Cardno	Basal application of 100% Triclopyr/Pathfinder II.	0.75 gallons	Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass
Horse Mill Branch	4/20/2022	Cardno	Foliar application of 4% Triclopyr/Garlon 3A.	3.5 gallons	Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass
Horse Mill Branch	4/21/2022	Cardno	Foliar application of 4% Glyphosate.	1 gallon	Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass
Horse Mill Branch	4/29/2022	Cardno	Foliar application of 2% Glyphosate.	120 gallons	Multiflora rose, Bush honeysuckle, Japanese honeysuckle
Horse Mill Branch	4/29/2022	Cardno	Basal application of 100% Triclopyr/Pathfinder II.	1 gallon	Autumn olive
Horse Mill Branch	10/4/2022	KG, MB	Foliar application of 5% Glyphosate.	1 gallon	Multiflora rose, Autumn olive, Japanese knotweed
Cardno* Cardno is a KDFWR Contractor					
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 29. Horse Mill Branch Invasive Retreatment 2022



Broke Leg Creek:

Cardno treated Broke Leg Creek on March 21, 2022 and visited several times through June 20, 2022. In teams of two to four, they focused on treating multiflora rose and Japanese honeysuckle via foliar application, but other species such as Japanese stilt grass, Reed canary grass, and Japanese barberry were also treated.

Figure 30. Broke Leg Creek Invasive Retreatment 2022

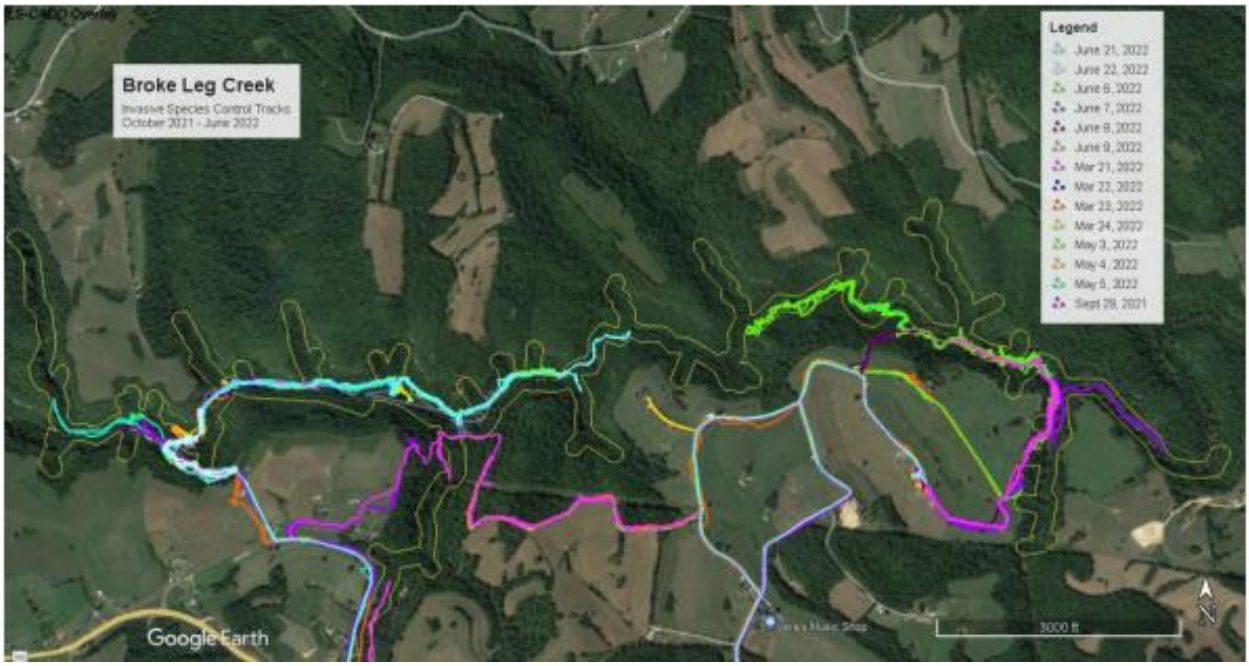


Table 51. Completed IPBI Retreatment Task Broke Leg Creek 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Broke Leg Creek	3/21/2022	Cardno	Foliar application of 3% Glyphosate.	3 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	3/24/2022	Cardno	Cut stump of 50% Glyphosate.	0.5 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	3/24/2022	Cardno	Foliar application of 3% Glyphosate.	10 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	3/25/2022	Cardno	Foliar application of 3% Glyphosate.	12 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	5/2/2022	Cardno	Foliar application of 2% Glyphosate.	100 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	5/3/2022	Cardno	Foliar application of 2% Glyphosate.	50 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	5/4/2022	Cardno	Foliar application of 2% Glyphosate.	150 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	5/5/2022	Cardno	Foliar application of 2% Glyphosate.	50 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	6/6/2022	Cardno	Foliar application of 2% Glyphosate.	100 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	6/7/2022	Cardno	Foliar application of 2% Glyphosate.	250 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	6/8/2022	Cardno	Foliar application of 2% Glyphosate.	200 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	6/8/2022	Cardno	Foliar application of 2% Glyphosate.	150 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	6/20/2022	Cardno	Foliar application of 2% Glyphosate.	100 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	6/21/2022	Cardno	Foliar application of 2% Glyphosate.	150 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	6/22/2022	Cardno	Foliar application of 2% Glyphosate.	100 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	6/23/2022	Cardno	Foliar application of 2% Glyphosate.	150 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Broke Leg Creek	6/24/2022	Cardno	Foliar application of 2% Glyphosate.	50 gallons	Japanese honeysuckle, Japanese stilt grass, Reed canary grass, Multiflora rose, Japanese barberry
Cardno* Cardno is a KDFWR Contractor					
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

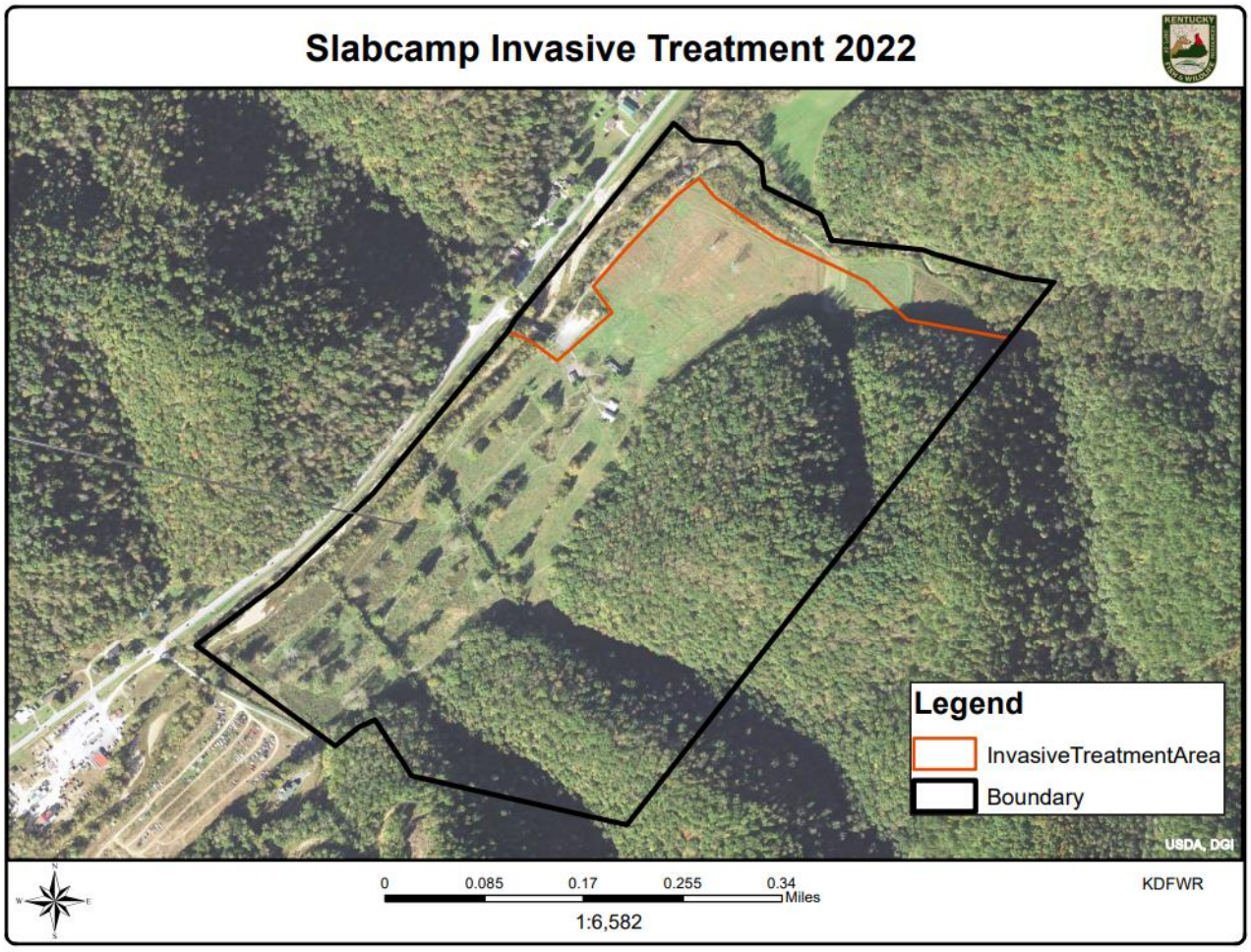
Slabcamp Branch:

Slabcamp Branch was visited on October 4, 2022. A crew of two people foliar sprayed the riparian zone via 25-gallon UTV sprayers. Knotweed, multiflora rose, and Autumn olive were seen in the largest quantities throughout the site and therefore were our main target in our treatment. FILO also treated smaller amounts of *Sericea lespedeza* throughout. A few burning bushes were scattered along the stream and a few Bradford pears were present near the parking lot and were also treated.

Table 52. Completed IPBI Retreatment Task Slabcamp Branch 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Slabcamp Branch	10/4/2022	KG, MB	Foliar application of 5% Glyphosate.	30 gallons	Multiflora rose, Japanese knotweed, Autumn olive, Burning bush, Sericea lespedeza, Bradford pear
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 31. Slabcamp Branch Invasive Retreatment 2022



Upper Kentucky River Service Area:

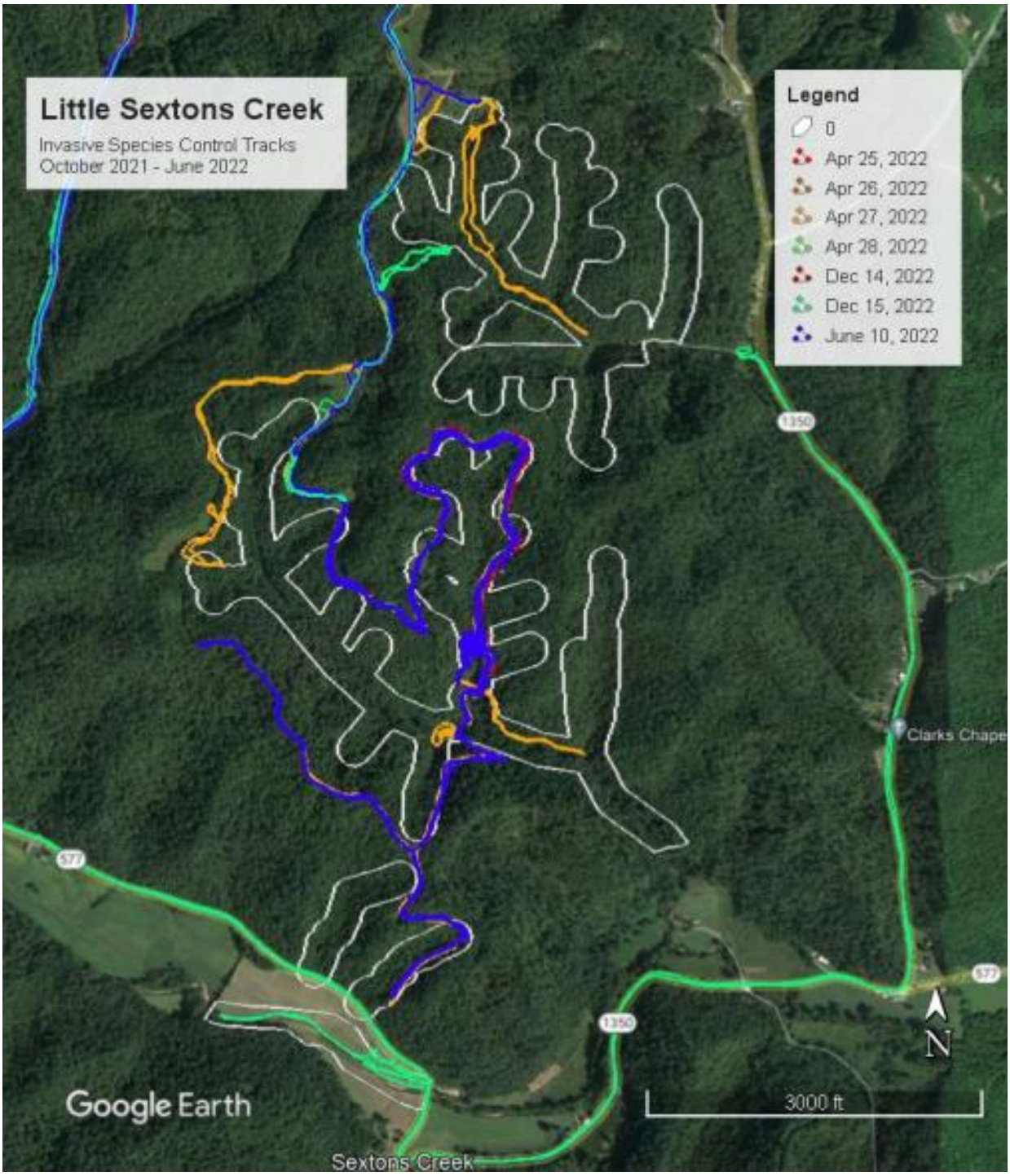
Little Sextons Creek:

Cardno began treating Little Sextons Creek on April 25, 2022, and visited multiple times through June 10, 2022. In teams of two to four, they focused on the areas with the most disturbance, which was mostly along UTV paths. Most of the work was completed in April, but they went back in June to ensure that the spring treatment was successful and to treat any remaining invasive species they encountered. Multiflora rose, Japanese honeysuckle, Japanese stilt grass, and Autumn olive were the species they treated. On October 3, 2022, a team of two from our crew revisited Little Sextons Creek and sprayed a few patches of multiflora rose, Autumn olive, *Sericea lespedeza*, Chinese silver grass, Johnson grass, and thistle that had not died back.

Table 53. Completed IPBI Retreatment Task Little Sextons Creek 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Little Sextons Creek	4/25/2022	Cardno	Foliar application of 2% Glyphosate.	50 gallons	Multiflora rose, Japanese honeysuckle, Japanese stilt grass
Little Sextons Creek	4/25/2022	Cardno	Basal application of 100% Triclopyr/Pathfinder II.	2.5 gallons	Autumn olive
Little Sextons Creek	4/26/2022	Cardno	Foliar application of 2% Glyphosate.	165 gallons	Multiflora rose, Japanese honeysuckle, Japanese stilt grass
Little Sextons Creek	4/26/2022	Cardno	Basal application of 100% Triclopyr/Pathfinder II.	2.5 gallons	Autumn olive
Little Sextons Creek	4/27/2022	Cardno	Foliar application of 2% Glyphosate.	75 gallons	Multiflora rose, Japanese honeysuckle, Japanese stilt grass
Little Sextons Creek	4/28/2022	Cardno	Basal application of 100% Triclopyr/Pathfinder II.	5 gallons	Autumn olive
Little Sextons Creek	4/28/2022	Cardno	Foliar application of 2% Glyphosate.	20 gallons	Multiflora rose, Japanese honeysuckle, Japanese stilt grass
Little Sextons Creek	6/10/2022	Cardno	Foliar application of 2% Glyphosate.	50 gallons	Multiflora rose, Japanese honeysuckle, Japanese stilt grass
Little Sextons Creek	10/3/2022	KG, MB	Foliar application of 5% Glyphosate.	9 gallons	Multiflora rose, Autumn olive, Sericea lespedeza, Chinese silver grass, Johnson grass, Thistle
Cardno* Cardno is a KDFWR Contractor					
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 32. Little Sextons Creek Invasive Retreatment 2022



Lower Kentucky River Service Area:

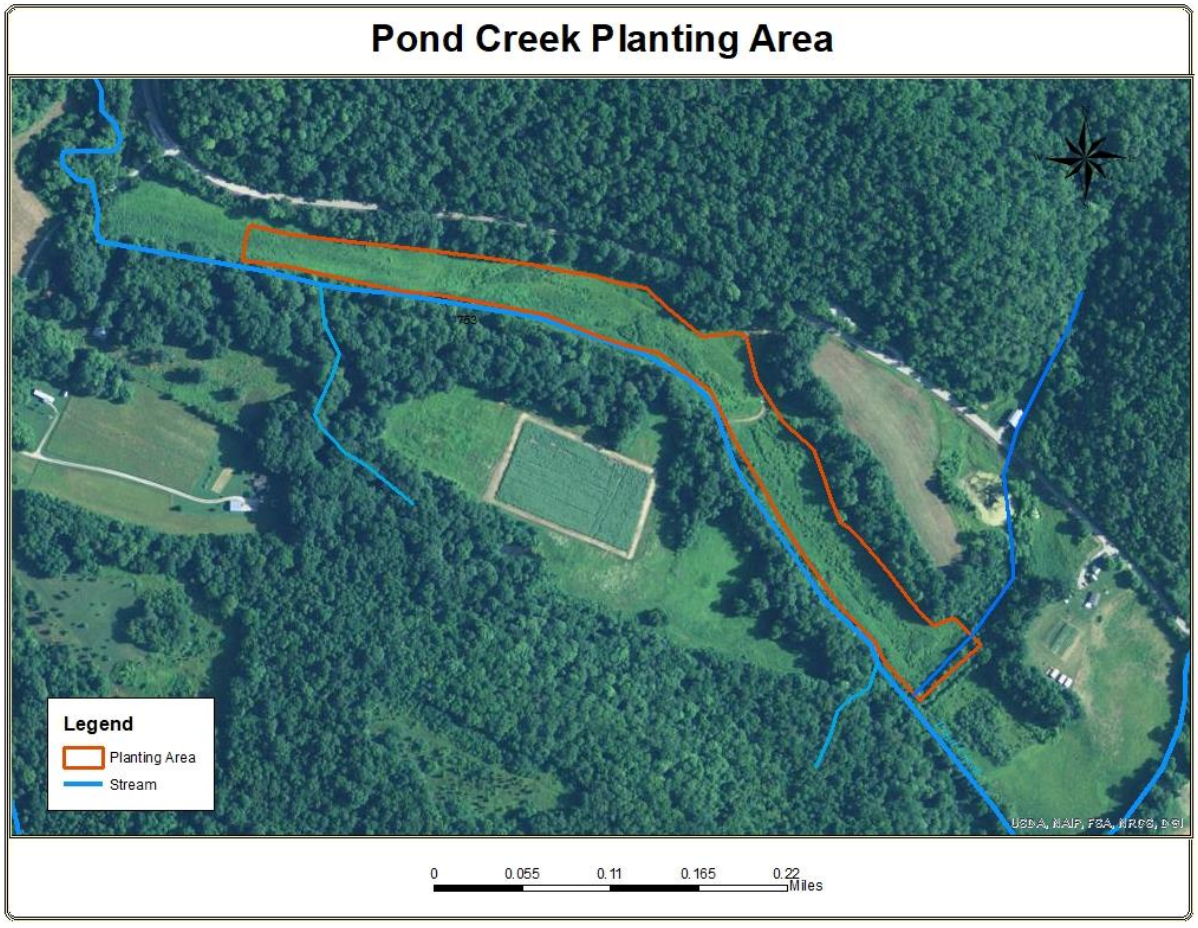
Pond Creek:

On February 10, 2022, a team of two people visited Pond Creek to plant 250 live stakes of various species in order to improve diversity in the wetland.

Table 54. Completed IPBI Retreatment Task Pond Creek 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Pond Creek	2/10/2022	KG, MB	Live Staking	250 stems	Live staked the project area to improve the tree and shrub diversity on the wetland project.

Figure 33. Pond Creek Planting 2022



Northern Kentucky Service Area:

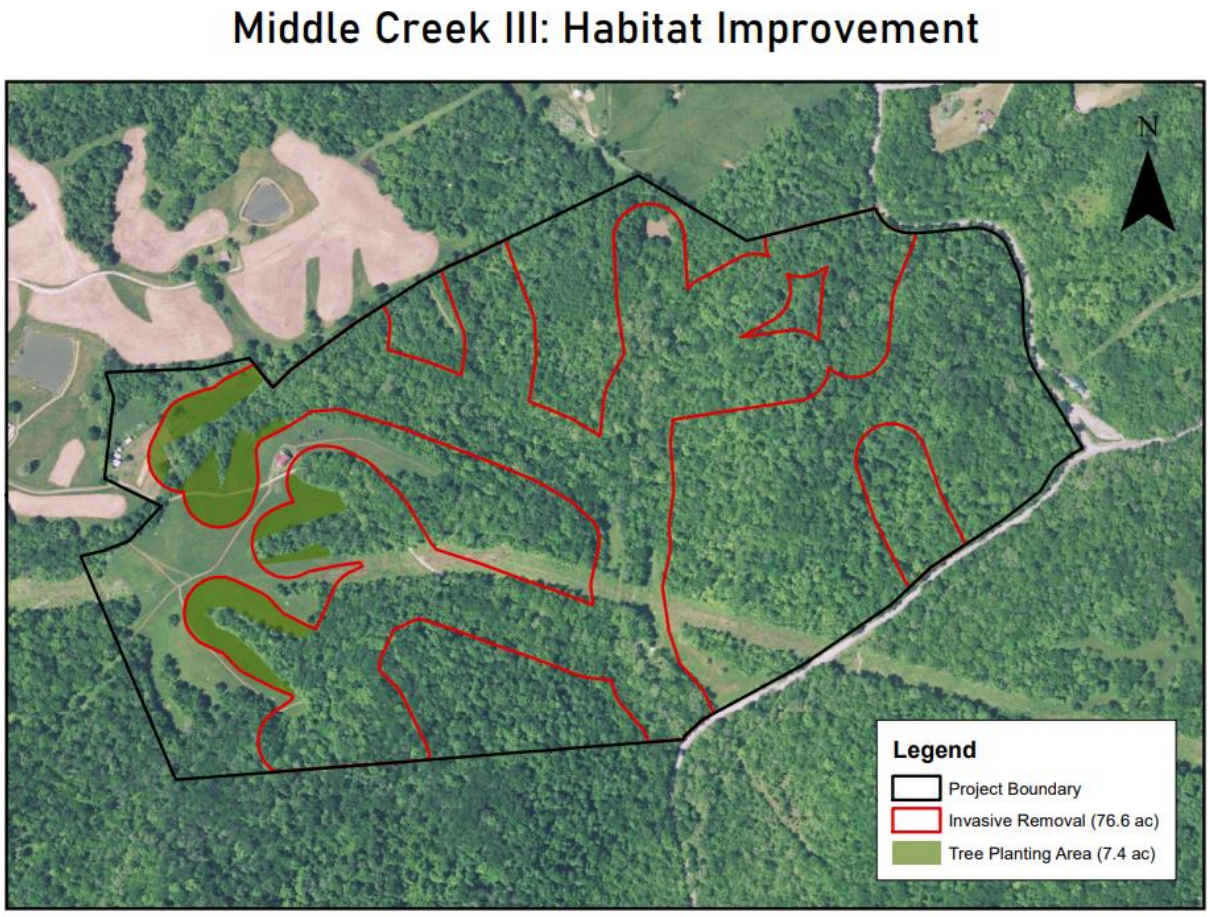
Middle Creek III (Anderson Branch):

Middle Creek III was visited on Anderson Branch on June 29, 2022. Multiflora rose was present and treated throughout much of the site, especially along the roads and trails where there has been more disturbance. Curly dock and thistle were encountered and treated on the edges of the fields running along the stream and bush honeysuckle, garlic mustard, and Autumn olive were encountered and treated in wooded areas.

Table 55. Completed IPBI Retreatment Task Middle Creek III 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Middle Creek 3 (Anderson Branch)	6/29/2022	KG, NN, LC	Foliar application of 3% Glyphosate.	33 gallons	Multiflora rose, Curly dock, Honeysuckle, Thistle, Garlic mustard, Autumn Olive
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 34. Middle Creek III Invasive Retreatment



Salt River Service Area:

Rolling Fork WMA:

Rolling Fork River Floodplain, Rolling Fork River Wetland, Stillwell Branch

On March 2-3, 2022, Cardno went out to Rolling Fork WMA with a crew of five people and focused their efforts on woody invasive removal via cut stump and basal application. The species focused on at this time were tree of heaven, burning bush, and multiflora rose. Much of these species occurred along Stillwell Branch. Cardno returned on May 23-25, 2022, and focused on foliar spraying multiflora rose, Japanese honeysuckle, Autumn olive, and bush honeysuckle. Tree of heaven and autumn olive were also treated via basal bark application at this time. The spring treatment was continued on May 31 and June 1, 2022. The crew focused on previously untreated areas of the WMA and their species focus remained largely the same with a few areas of Japanese stilt grass also treated. The final treatment of Rolling Fork WMA occurred on June 16 and 17, 2022. Multiflora rose, Japanese honeysuckle, and Japanese stilt grass were the focus of this final treatment.

Figure 35. Rolling Fork WMA Invasive Retreatment 2022

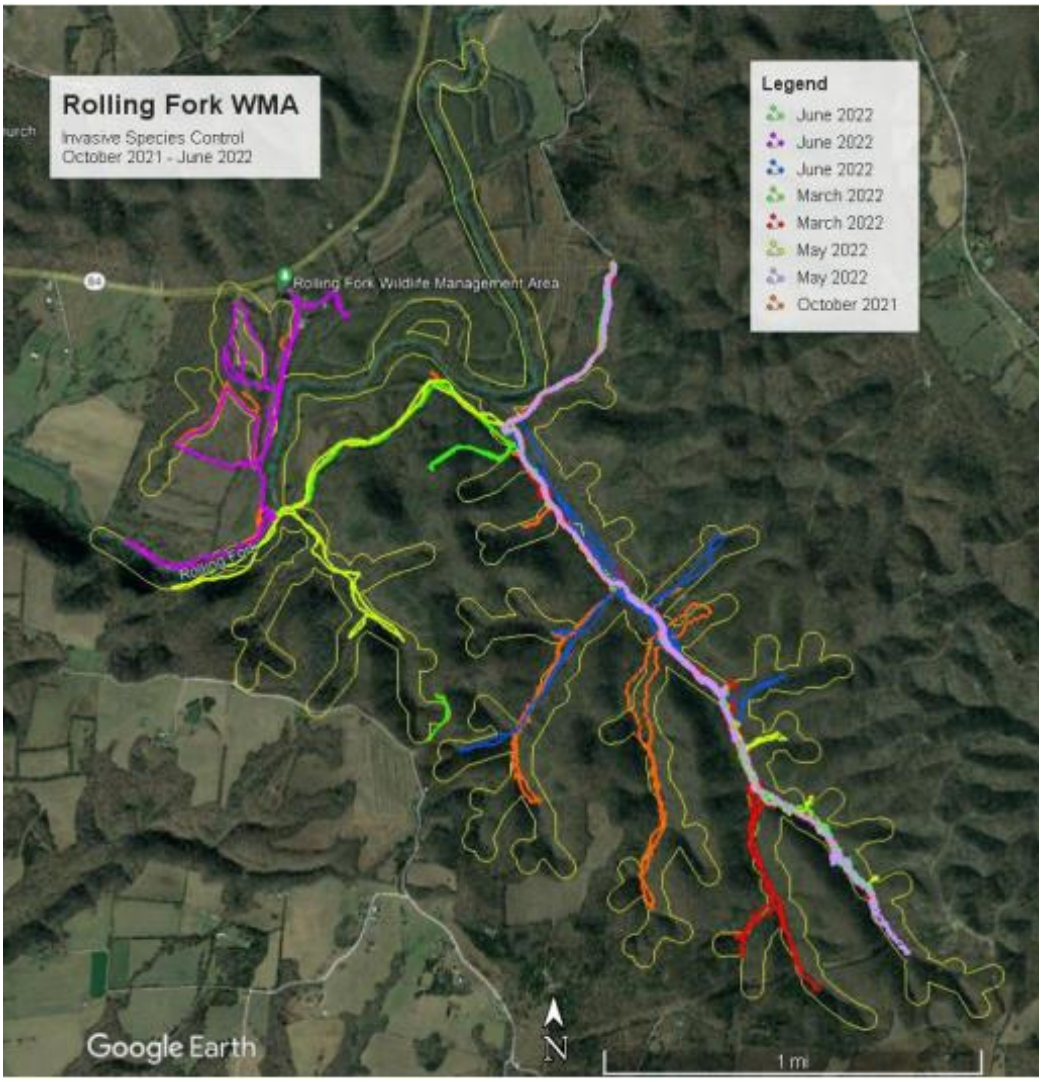


Table 56. Completed IPBI Retreatment Task Rolling Fork WMA 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Rolling Fork WMA	3/2/2022	Cardno	Basal application of 20% Triclopyr/Pathfinder II.	4.5 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	3/2/2022	Cardno	Cut stump of 50% Glyphosate.	48 oz	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	3/3/2022	Cardno	Basal application of 20% Triclopyr/Pathfinder II.	3.5 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	3/3/2022	Cardno	Cut stump of 50% Glyphosate.	72 oz	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	5/23/2022	Cardno	Basal application of 20% Triclopyr/Pathfinder II.	1.5 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	5/24/2022	Cardno	Foliar application of 2% Glyphosate.	150 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	5/25/2022	Cardno	Basal application of 20% Triclopyr/Pathfinder II.	0.5 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	5/25/2022	Cardno	Foliar application of 2% Glyphosate.	100 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	5/31/2022	Cardno	Basal application of 20% Triclopyr/Pathfinder II.	0.5 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	5/31/2022	Cardno	Foliar application of 2% Glyphosate.	80 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	6/1/2022	Cardno	Basal application of 20% Triclopyr/Pathfinder II.	0.5 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	6/1/2022	Cardno	Foliar application of 2% Glyphosate.	60 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	6/16/2022	Cardno	Foliar application of 2% Glyphosate.	150 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Rolling Fork WMA	6/17/2022	Cardno	Foliar application of 2% Glyphosate.	48 gallons	Tree of heaven, Princess tree, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Sericea lespedeza
Cardno* Cardno is a KDFWR Contractor					
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

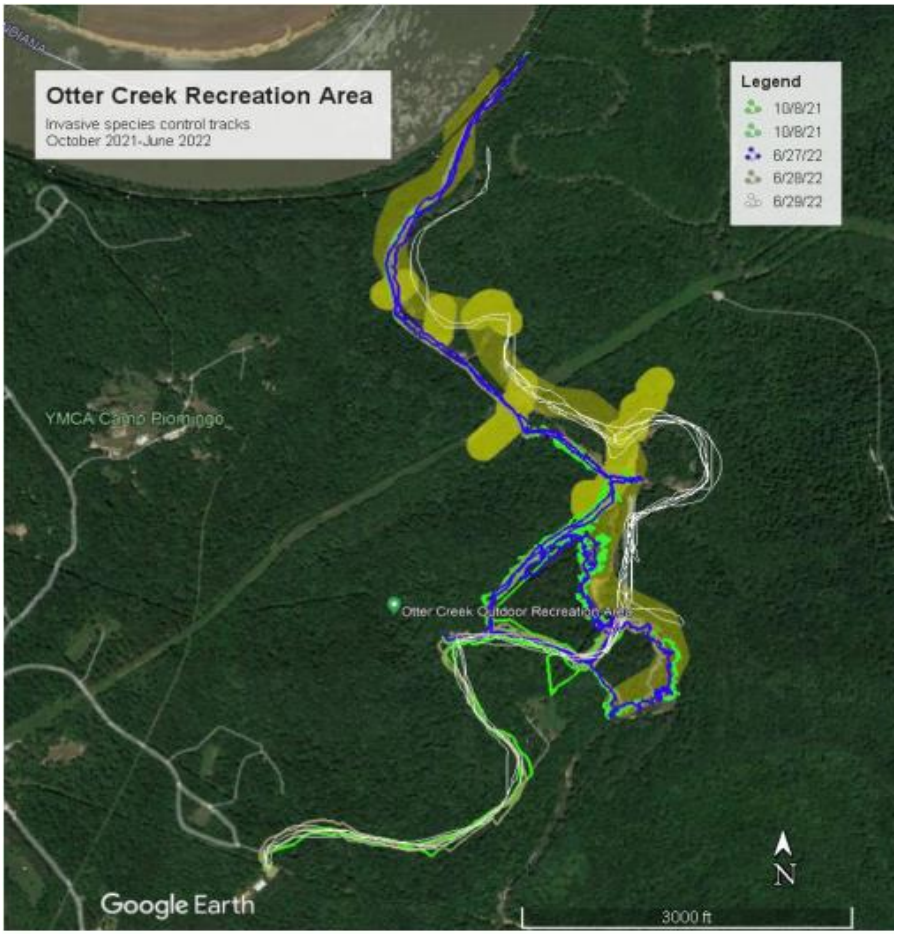
Otter Creek:

Cardno visited Otter Creek from June 27-29, 2022. Both banks of the stream were able to be treated fully despite the flooding that had occurred in the months prior. A crew of five people used a combination of UTV sprayers and backpack sprayers and focused mainly on the following herbaceous species: Japanese chaff flower, Japanese hops, Japanese honeysuckle, Japanese stilt grass, winter creeper, and multiflora rose. They noted that the species they encountered were greatly reduced this year because of the previous year's treatment.

Table 57. Completed IPBI Retreatment Task Otter Creek 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Otter Creek	6/27/2022	Cardno	Foliar application of 2% Glyphosate.	225 gallons	Japanese chaff flower, Japanese hops, Japanese honeysuckle, Japenese stilt grass, Winter creeper, Multiflora rose
Otter Creek	6/28/2022	Cardno	Foliar application of 2% Glyphosate.	125 gallons	Japanese chaff flower, Japanese hops, Japanese honeysuckle, Japenese stilt grass, Winter creeper, Multiflora rose
Otter Creek	6/29/2022	Cardno	Foliar application of 2% Glyphosate.	100 gallons	Japanese chaff flower, Japanese hops, Japanese honeysuckle, Japenese stilt grass, Winter creeper, Multiflora rose
Cardno* Cardno is a KDFWR Contractor					
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 36. Otter Creek Invasive Retreatment 2022



Green River Service Area:

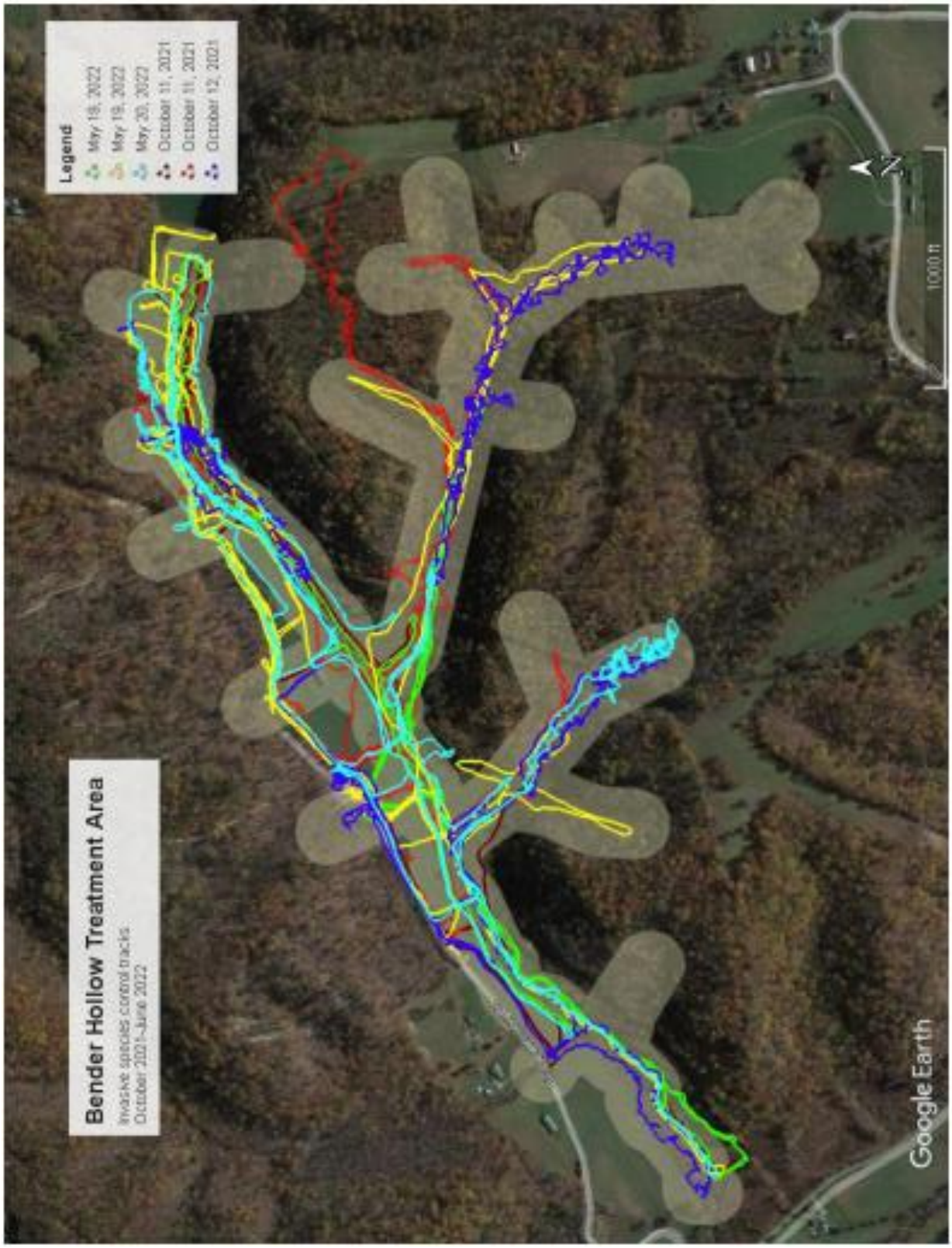
Bender Hollow:

Cardno performed invasive species treatment at Bender Hollow on May 19 and 20, 2022 with a team of two to three people. They mainly focused on treating Japanese honeysuckle, multiflora rose, and Japanese stilt grass via foliar application and tree of heaven via basal application, and other species were also encountered and treated throughout the site.

Table 58. Completed IPBI Retreatment Task Bender Hollow 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Bender Hollow	5/19/2022	Cardno	Foliar application of 4oz/50gal Metsulfuron-Methyl-Escort XP.	300 gallons	Tree of heaven, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Johnson grass
Bender Hollow	5/19/2022	Cardno	Foliar application of 2% Triclopyr-Garlon 3A.	100 gallons	Tree of heaven, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Johnson grass
Bender Hollow	5/20/2022	Cardno	Foliar application of 2% Glyphosate.	250 gallons	Tree of heaven, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Johnson grass
Bender Hollow	5/20/2022	Cardno	Basal application of 100% Triclopyr/Pathfinder II.	12 oz	Tree of heaven, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Johnson grass
Cardno* Cardno is a KDFWR Contractor					
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 37. Bender Hollow Invasive Retreatment 2022



Gabbard Branch:

On February 28 and March 1, 2022, Cardno had a team of five people at Gabbard Branch that were able to focus on woody invasive treatment via basal application and cut stump. Tree of heaven and Autumn olive were concentrated along the main stem of Gabbard Branch and were the focus of the winter treatment, although other species were encountered. Cardno returned for the first spring treatment from May 9-13, 2022. Multiflora rose, Japanese honeysuckle, and reed canary grass were the main species encountered and treated via foliar application. The second spring treatment occurred from June 13-15, 2022, again focusing efforts on multiflora rose, Japanese honeysuckle, and reed canary grass, though other species were also encountered and treated.

Figure 38. Gabbard Branch Invasive Retreatment 2022

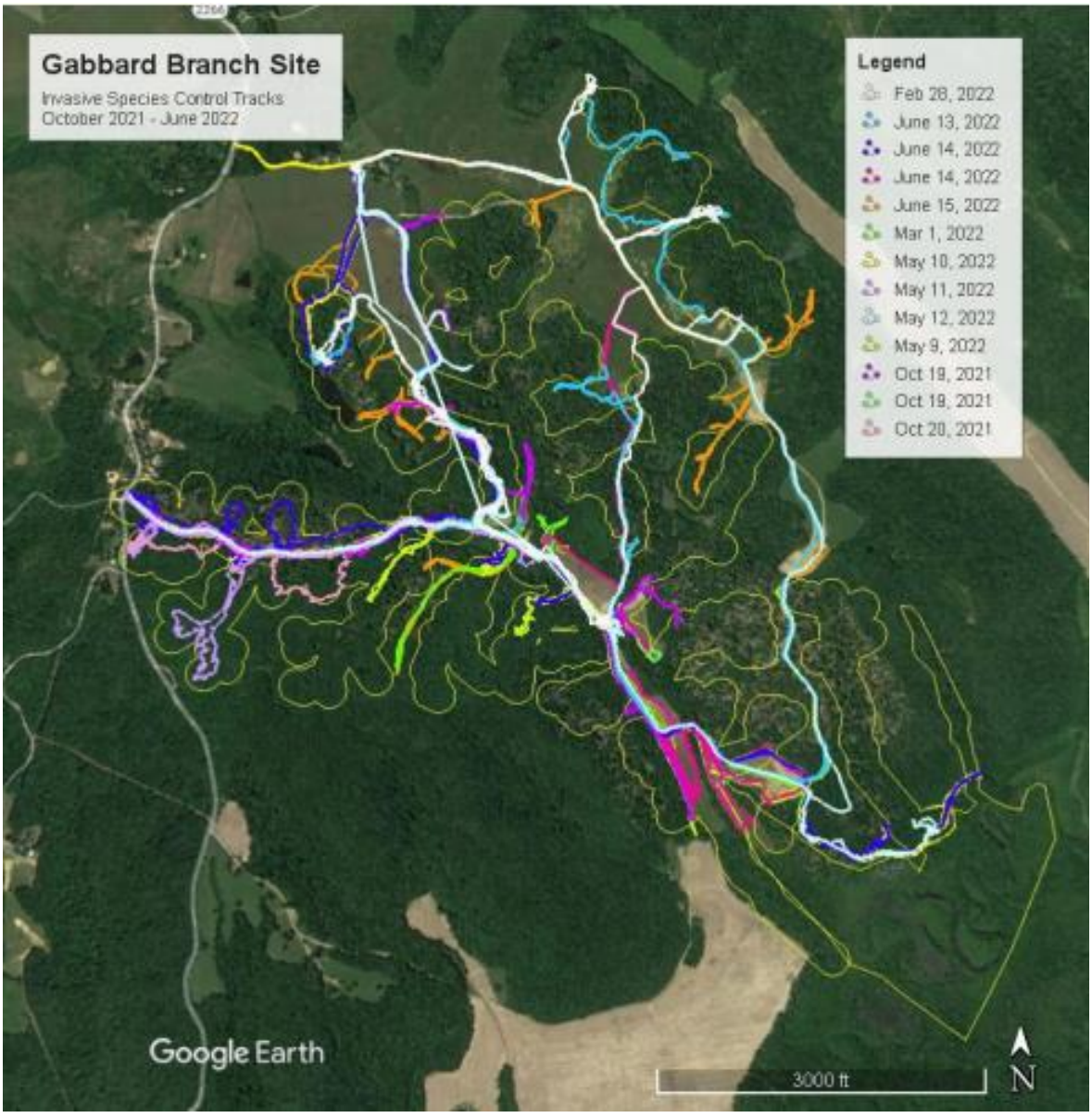


Table 59. Completed IPBI Retreatment Task Gabbard Branch 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Gabbard Branch	2/28/2022	Cardno	Basal application of 20% Triclopyr/Pathfinder II.	8 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	2/28/2022	Cardno	Cut stump of 50% Triclopyr/Garlon 3A.	28 oz	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	3/1/2022	Cardno	Basal application of 20% Triclopyr/Pathfinder II.	4 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	5/9/2022	Cardno	Foliar application of 2% Glyphosate.	150 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	5/10/2022	Cardno	Foliar application of 2% Glyphosate.	350 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	5/11/2022	Cardno	Foliar application of 2% Glyphosate.	200 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	5/12/2022	Cardno	Foliar application of 2% Glyphosate.	150 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	5/13/2022	Cardno	Foliar application of 2% Glyphosate.	75 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	6/13/2022	Cardno	Foliar application of 2% Glyphosate.	50 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	6/14/2022	Cardno	Foliar application of 2% Glyphosate.	120 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Gabbard Branch	6/15/2022	Cardno	Foliar application of 2% Glyphosate.	50 gallons	Mimosa tree, Sericea lespedeza, Bradford pear, Autumn olive, Japanese honeysuckle, Giant reed, Multiflora rose, Bush honeysuckle, Japanese stilt grass, Burning bush, Princess tree
Cardno* Cardno is a KDFWR Contractor					
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

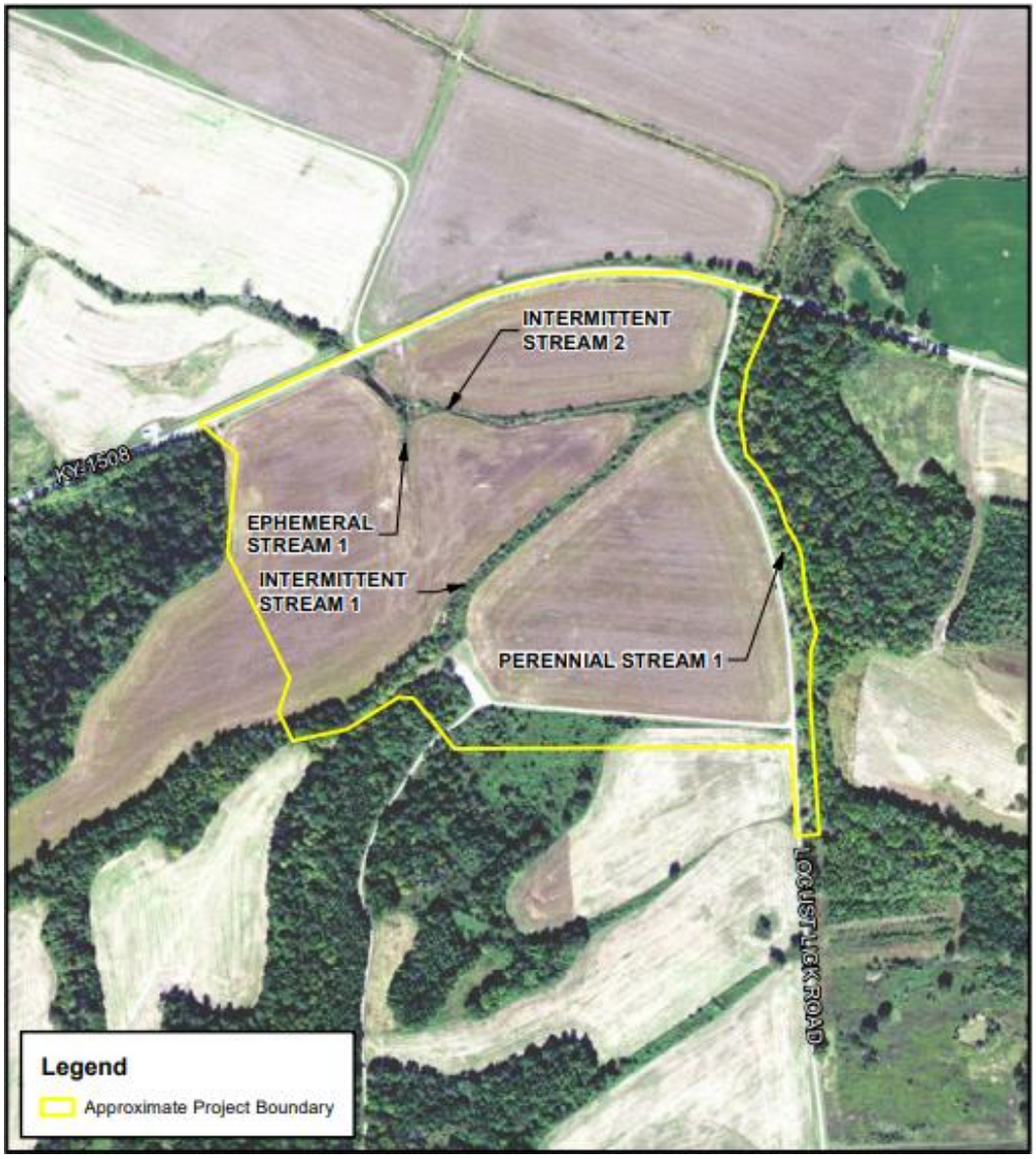
Big Rivers:

We visited Big Rivers late in the foliar spray season on October 18, 2022. With a team of three people, very few invasive species were encountered aside from a few patches of Johnson grass and thistle, which were treated via backpack sprayer.

Table 60. Completed IPBI Retreatment Task Big Rivers 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Big Rivers	10/18/2022	KG, MB, LC	Foliar application of 3% Glyphosate.	1 gallon	Johnson grass, Thistle
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 39. Big Rivers Invasive Retreatment 2022



Upper Cumberland River Service Area:

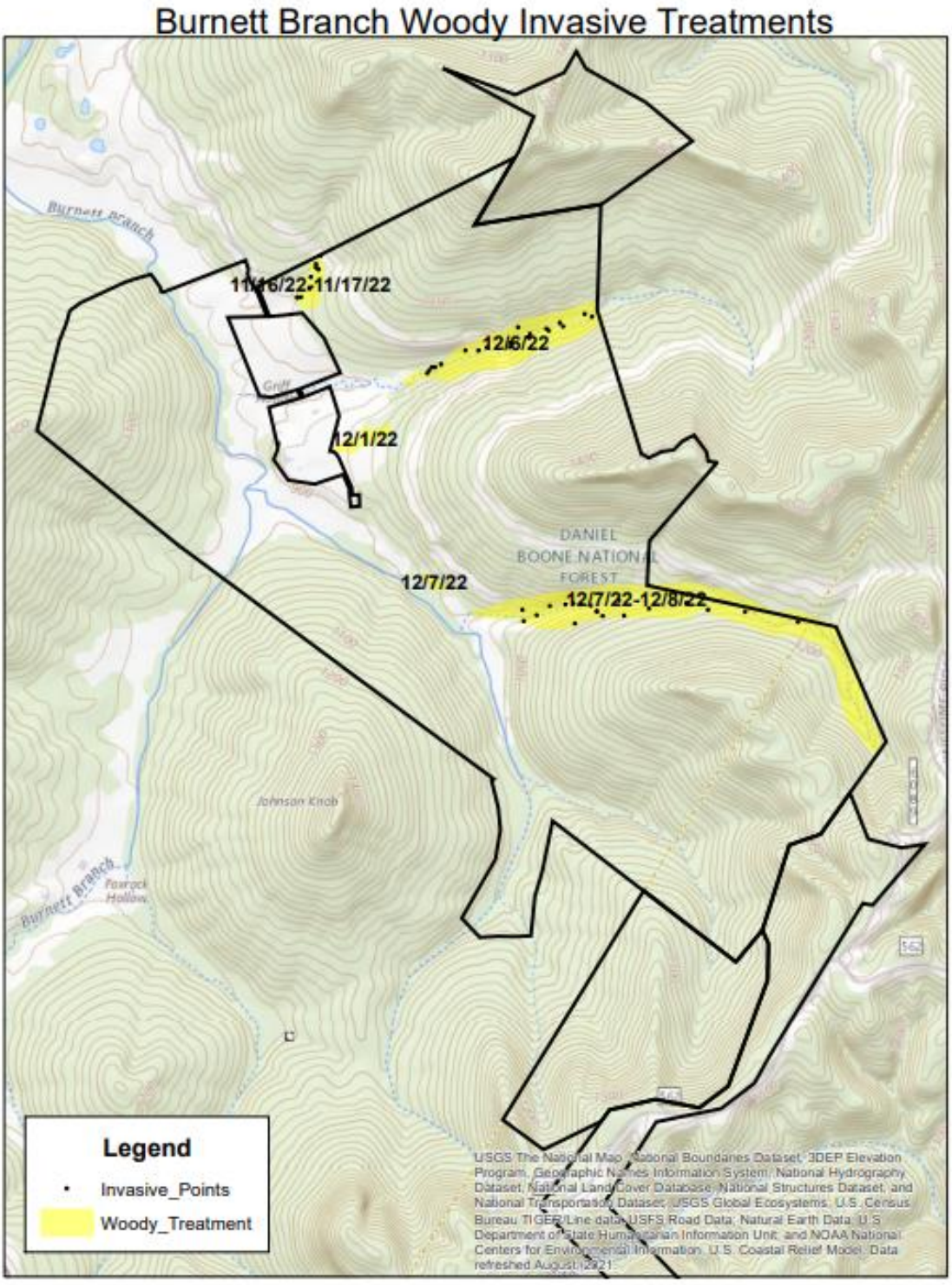
Burnett Branch:

On November 16, 2022, KNP began their invasive species treatment at Burnett Branch. They went out in teams of two or three several days through December 8, 2022. On November 16 and 17, the focus was on removing bush honeysuckle, tree of heaven, Chinese privet, multiflora rose, and Japanese honeysuckle, though other species were also encountered. There was also heavenly bamboo that was treated in the section from the first two days. KNP went to a new section of Burnett Branch on December 1 and focused their treatment along an old fence row that had a high presence of tree of heaven. Chinese privet, multiflora rose, and Japanese honeysuckle were also encountered this day. KNP finished up treatment of this site on December 6-8 at two different sections. A patch of tree of heaven and multiflora rose were treated along the field edge, but these species along with Japanese honeysuckle were significantly present throughout. The larger drain contained a lot of princess tree, especially on the slopes of the drain, but they noted that invasive presence declined as they further away from of the drain. They also encountered and treated Autumn olive, Chinese privet, and bush honeysuckle along the edge of the woods. Overall, their focus was mostly on woody invasives since it was late fall so they used both cut stump and hack and squirt methods for those species and used the cut stem method for the multiflora rose.

Table 61. Completed IPBI Retreatment Task Burnett Branch 2022

Completed IPBI Task List 2022					
Project Name	**Date**	**Staff**	**Action**	**Amount**	**Description**
Burnett Branch	11/16/2022	KNP	Cut stump of 25% Garlon 4.	104 oz	Bush honeysuckle, Autumn olive, Chinese privet, Japanese honeysuckle
Burnett Branch	11/16/2022	KNP	Garlon 4.	62 oz	Tree of heaven, Princess tree
Burnett Branch	11/17/2022	KNP	Cut stem of 50% Glyphosate.	14 oz	Multiflora rose, Heavenly bamboo
Burnett Branch	12/1/2022	KNP	Cut stump of 25% Garlon 4.	104 oz	Bush honeysuckle, Autumn olive, Chinese privet, Japanese honeysuckle
Burnett Branch	12/1/2022	KNP	Basal application of 50% Garlon 4.	62 oz	Tree of heaven, Princess tree
Burnett Branch	12/1/2022	KNP	Cut stem of 50% Glyphosate.	14 oz	Multiflora rose
Burnett Branch	12/6/2022	KNP	Cut stump of 25% Garlon 4.	2.5 gallons	Bush honeysuckle, Autumn olive, Chinese privet, Japanese honeysuckle
Burnett Branch	12/7/2022	KNP	Basal application of 50% Garlon 4.	2 gallons	Tree of heaven, Princess tree
Burnett Branch	12/8/2022	KNP	Cut stem of 50% Glyphosate.	12 oz	Multiflora rose
KNP*** Kentucky Nature Preserves is in Memorandum of Agreement with KDFWR					
Amount** represents the amount of the diluted chemical used to treat the invasive species.					

Figure 40. Burnett Branch Invasive Retreatment 2022



Appendix E – Permitted Compensatory Mitigation Projects

Table 62. List of Instrument Modifications

Table of Corps Approved Mitigation Projects: KDFWR Mitigation Program - Louisville LRL-2010-325							
PROJECT	COUNTY	SERVICE AREA	Instrument Mod. No.	404 PERMIT ID.NO.	404 PERMIT APPROVAL DATE	401 WQC ID. NO.	401 WQC APPROVAL DATE
ILF-KDFWR Elm Fork/Kleber WMA Stream Restoration Project (MOA)	Owen	Lower Kentucky River Service Area	2	LRL-2012-00263	02/12/13	2012-050-1	10/22/12
ILF-KDFWR Indian Creek Stream Restoration Project (MOA)	Menifee	Upper Kentucky River Service Area	3	LRL-2012-00273	07/09/13	2013-009-1	03/07/13
ILF-KDFWR Roger's Gap Stream Restoration Project (MOA)	Scott	Lower Kentucky River Service Area	4	LRL-2012-00134	12/04/13	2013-026-1	06/26/13
ILF-KDFWR Eagle Creek Tributaries Restoration Project (MOA & ILF-I)	Union	Green River Service Area	5	LRL-2012-00716	01/16/15	2014-18-1M	06/04/14
ILF-KDFWR Myer's Station Stream Restoration (ILF-I)	Nicholas	Lower Licking River Service Area	6	LRL-2012-00637	04/20/16	2016-004-1	01/15/16
ILF-KDFWR Old Trace Creek Restoration (ILF-I)	Lewis	Big Sandy River Service Area	7	LRL-2013-00336	02/13/17	2016-029-1	04/26/16
KDFWR ILF Instrument Full Modification (to add 9 counties/change SA)	All	9 County Region	8	LRL-2010-325		NA	
ILF-KDFWR Goose Creek Restoration (ILF-I)	Casey	Green River Service Area	9	LRL-2012-00646	03/23/17	2016-090-7	09/21/16
ILF-KDFWR Minor's Creek Restoration (ILF-I)	Owen, Franklin	Lower Kentucky River Service Area	10	LRL-2013-00091	05/22/17	2016-097-1	10/31/16
ILF-KDFWR Ross Creek Stream & Wetland Restoration Phase I & II (MOA & ILF-I)	Lee, Estill	Upper Kentucky River Service Area	11	LRL-2013-00143	10/26/17	2016-111-7R	09/25/17
ILF-KDFWR Red Oak Creek Restoration Project, Drainage C (ILF-I)	Owen	Lower Kentucky River Service Area	12	LRL-2014-00500	04/17/18	2017-091-1	12/18/17
ILF-KDFWR Big Farm Indian Creek Restoration Project (ILF-I)	Bath	Lower Licking River Service Area	13	LRL-2014-00209	05/30/19	2019-001-7	10/05/18
ILF-KDFWR-Whites Creek Stream Restoration Project (ILF-I)	Boyd	Big Sandy River Service Area	14	LRL-2012-634	10/18/21	2018-015-7MR3	03/05/18
Ed Mabry – Laurel Gorge WMA Stream Restoration Project	Elliott	Big Sandy River Service Area	15	LRL-2013-00858 LRL-2013-01013 LRL-2012-00478	05/14/20	2020-036-1M	06/14/21
ILF-KDFWR-Instrument Modification increasing advanced stream credits in the NKSA and increasing advanced wetland credits in SRSA		Salt River Service Area and Northern Ky Service Areas	16	LRL-2010-00325 LRN-2011-709 MVM-2011-00521	03/11/22	NA	NA

Table of Corps Approved Mitigation Projects: KDFWR Mitigation Program - Nashville LRN-2011-00709							
PROJECT	COUNTY	SERVICE AREA	Instrument Mod. No.	404 PERMIT ID.NO.	404 PERMIT APPROVAL DATE	401 WQC ID. NO.	401 WQC APPROVAL DATE
Sinking Valley Preservation Project	Pulaski	Upper Cumberland	2	LRN-2012-00326	12/11/2013	n/a	n/a
Hatchery Creek Restoration Project	Russell	Lower Cumberland	3	LRN-2010-00444	7/25/2014	23-041-7M(3)	7/15/2014
Blue Spring Creek Stream Restoration Project	Trigg	Lower Cumberland	4	LRN-2013-00776	4/23/2019	2015-092-1R	1/3/2019

Table of Corps Approved Mitigation Projects: KDFWR Mitigation Program - Memphis MVM-2013-95							
PROJECT	COUNTY	SERVICE AREA	Instrument Mod. No.	404 PERMIT ID.NO.	404 PERMIT APPROVAL DATE	401 WQC ID. NO.	401 WQC APPROVAL DATE
Obion II	Hickman	Jackson Purchase	1	MVM-2010-074	4/29/2014	2010-027-1	3/23/2010