

GREEN INFRASTRUCTURE PLANNING
Environmental Working Group (EWG) Sub-Committee

The purpose of the Environmental Working Group is to:

1. To identify the environmental resources that are important for the communities to preserve for the future.
2. To complete a map identifying where key environmental areas are and the linkages and hubs to access them.
3. To identify to the best of our abilities what these ecosystems require.

Sub-group Committees:

Watersheds/Water Quality – Bob Morgan, Matt Van Eps, Delia Haak

Upland Forests - Elizabeth Adam, Barbara Boland, Douglas James, and Judy Woltjen.

Wetland/Prairie/Savannah – Bob Cross, Joe Neal, Aubrey Shepherd, Erin Billings, Bruce Shackelford, Chris Wilson

Springs – Judy and Duane Woltjen

Awareness Needs: Education on native prairies and wetlands. Need to tell historical stories of the area and provide information on native and invasive plants.

**Green Infrastructure Project
Environmental Working Group
Watersheds/Water Quality Sub-committee
Submitted by Robert Morgan, Matt VanEps, Delia Haak**

Streams are an obvious but critical component of the green infrastructure of a community. A healthy stream system includes not only channels but also the adjacent streamside or riparian zone, floodplain and transition zone. The stream and surrounding riparian zones provide:

- Transport of water, energy and sediment,
- pollutant cycling and removal,
- aquatic and terrestrial habitat and refugia,
- corridors for movement,
- amelioration of water temperature,
- air pollution abatement,
- flood water storage,
- recreational and aesthetic values.

Fayetteville and the surrounding communities have a well developed dendritic stream system with no spot in town being more than a few hundred yards from a stream or ditch. Much of this system is still intact, or only moderately degraded. Other portions of the system have been substantially altered and degraded.

Stream ordination is a simple system of classifying streams by size. Streams are first ordered from their headwaters until they unite with another stream. When two first order streams unite, they become a second order stream. The junction of two second order streams forms a third order stream and so forth. The stream protection plan has identified second order and higher streams as identified on USGS 7½ minute quadrangle maps as priority areas for protection. This system of streams provides connective links between larger green nodes such as parks and wetlands within our community. Since second order streams are relatively large, smaller parcels of property have boundary lines that tend to run along these streams rather than being divided by them. Therefore this stream ordination system (off stream corridor prioritization) recognizes the reality of preserving private property rights.

For maximum protection of ecological function, the full width of the floodplain should be protected. Protection of lesser widths offers protection of less function. The Natural Resources Conservation Service recommends a minimum buffer of 66 feet for water quality protection.

Ways to preserve stream corridors include acquisition as part of the cities parks program, inclusion of corridors as part of required greenspace in commercial developments, low impact development practices and possibly other innovative approaches. The City of Fayetteville recognized the utility of connectivity along streams in the development of its trail system.

**GREEN INFRASTRUCTURE PLANNING
ENVIRONMENTAL WORKING GROUP
Northern Upland Hardwoods Subgroup**

Members of the subgroup: Elizabeth Adam, Barbara Boland, Douglas James, and Judy Woltjen. The subgroup met to identify *Forested Green Belts* in the study area that deserve recognition, protection, and conservation efforts. Five such green belt sites were identified as follows:

I) Green Belt from Lake Fayetteville to Wedington

- 1) Narrow belt from Lake Fayetteville to north of the Northwest Arkansas Mall.
- 2) Continues north of Mall across I-540 and south of Clear Creek to the Wedington Woods residential area, but still a woody environment.
- 3) Goes northward across Clear Creek at Wedington Woods through the Savoy community area then crossing the Illinois River northwest of Savoy and north of the fish hatchery.
- 4) This joins the vast upland forest of the Wedington Division of the Ozark National Forest in western Washington County and southern Benton county.

(This green belt comprises a narrow streamside woodland at the eastern end but widens progressively westward to encompass both riverside and upland forests finally terminating in extensive upland forest.)

II) Green Belt beginning at the Wilson Lake Area:

- 1) Recommend expanding of the upland forest area at the Wilson Lake Park by adding existing adjacent forests to the park.
- 2) This forested area extends as an existing upland forest green belt 18 km southward to the boundary of the Ozark National Forest and its extensive forested stands.

III) Green Belt from Kessler Mountain to the SSW:

- 1) This green belt includes all of Kessler Mountain to the southwest of Fayetteville and extends SSW to include first Miller Mountain and then Stevenson Mountain. Both Miller and Stevenson Mountains are not in the study area. It is suggested that the study area be expanded to include these two features.
- 2) This belt also extends northward across highway 62 to include Millsaps Mountain and eastward from there crossing I-540 to include Markham Hill west of Razorback Stadium.
- 3) There is also a forested spur to the northeast off Kessler Mountain known as Washington Mountain that is part of the green belt.

IV) Fayetteville Urban Forest Sites

Upland forested sites inside the city of Fayetteville deserve special conservation attention. These forest stands are shown as the “Top 100 Sites” on the map titled “Urban Forest Conservation Assessment for Fayetteville Arkansas” prepared under the auspices of the Fayetteville Natural Heritage Association.

V) Webber Mountain

Include scenic and forested Webber Mountain in eastern Springdale a half mile north of the study area boundary but adjacent to historic Butterfield Trail that crosses the study area.

**GREEN INFRASTRUCTURE PLANNING
ENVIRONMENTAL WORKING GROUP
WETLAND/PRAIRIE/SAVANNAH SUBGROUP (W/P/SS)**

Subgroup Members:

Joe Neal, Chris Wilson, Aubrey Shepherd, Bob Cross, Bruce Shackelford

The W/P/SS developed the following general objectives in October of 2008.

- 1. Identify the environmental resources that are important for the communities to preserve for the future.**
- 2. Complete a map identifying where key environmental areas are and the linkages and hubs to access them.**
- 3. Identify to the best of our abilities “what the community wants” and what ecosystems require.**

The W/P/SS initially developed the following list of potential wetland/prairie/savanna sites in October 2008 and added sites 12 and 13 in February 2009:

- SITE 1: Stonebridge Meadows Golf Course (also known as Goff Farm): Low wet prairie plants on approximately 10 acres next to Course on south side of Hwy.16E.**
- SITE 2: Lake Fayetteville: North of Environmental Study Center, 30-40 acres of City-owned land.**
- SITE 3: Wilson Springs/Clabber Creek: Audubon Society owned wet-prairie land (120 acres) southwest of 540 and Hwy 112.**
- SITE 4: Zion Road: Sweetser owned land south of Zion Road – app. 5 acres.**
- SITE 5: Woolsey Wet Prairie Sanctuary: 30-acre wetland mitigation site with 70 adjacent acres of prairie and savanna; owned by City of Fayetteville next to the West Side WWTP; could be expanded by another 70 acres as a mitigation bank/natural area.**
- SITE 6: World Peace Wetland Prairie Park (and adjacent tract) south of Hwy. 16 on Duncan & nearby Pinnacle Foods property.**
- SITE 7: University of Arkansas Farm on Garland has savanna and grassland fields.**
- SITE 8: Broyles/Yates Prairie on Woolsey Farm Rd. next to school in Farmington, 40 acres owned by Mr. & Mrs. Carl Yates.**
- SITE 9: Wedington Unit Forest: Grassland restoration on the west side of Ozark National Forest.**
- SITE 10: Pieces of prairie grasslands in the South Industrial Park on Armstrong (Combs Park).**
- SITE 11: South of Hwy. 16 large oak barren (savanna).**
- SITE 12: Park West development west of Hwy 112 (wet prairie).**
- SITE 13: Broyles Savanna (Woolsey Farm Road).**

Site Evaluation Methodology: The Subgroup developed a W/P/SS Site Characterization Sheet (attached) to be completed to categorize each site. The evaluation criteria included both socioeconomic and ecological issues, and a site categorization strategy to determine each site's potential for preservation and/or restoration. Site Characterization Sheets were completed for sites 1-8 and 12-13. Due to time limitations, evaluations for sites 9-11 were not completed. The sites were classified into one of the following categories:

Category 1 Site: Site size and location make it a prime candidate for preservation/restoration with minimal expenditure of financial and human resources; site may be protected by federal regulations as a "jurisdictional wetland"; site may provide critical habitat for resident and/or migratory fauna and may be inhabited by rare native flora species; site represents an endangered ecosystem such as a prairie or savanna that has been minimally impacted by anthropogenic activities such as grading, filling, structures, removal of vegetation, and or substantial habitat fragmentation; site is owned and operated by city, county, or state entity, or private individual or group who currently applies an "adaptive management" strategy to effectively preserve, restore, or enhance rare ecosystem features; protection of site will likely have significant community support; protection of site will very likely have high potential to provide a critical wildlife habitat hub or linkage corridor.

Category 2 Site: Site size and location make it a possible candidate for preservation/restoration although requirements for expenditures of financial and human resources may not be optimal on a cost/acre basis; site may be a wetland, but not necessarily protected by federal regulations as a "jurisdictional wetland"; site's capability to provide critical habitat for resident and/or migratory fauna, and/or native plant species of concern is moderate, questionable, or unknown primarily due to its small size; site may exist as a very small remnant fragment of prairie/wetland/savanna ecosystem; site may exhibit impacts by anthropogenic activities such as grading, filling, structures, removal of vegetation, and/or substantial habitat fragmentation; site is owned and operated by city, county, or state entity, or private individual or group that may not be willing to consider long-term preservation due to land value, planned site use, or lack of interest; site is currently not actively managed (or is minimally managed) with an "adaptive management" strategy to effectively preserve, restore, or enhance rare ecosystem features; protection of site will have questionable or minimal community support, therefore, site's potential to provide a wildlife habitat hub or linkage corridor is minimal to moderate.

Category 3 Site: Site size and location make it an unlikely candidate for preservation/restoration since a substantial expenditure of financial and human resources would be required; site is not protected by federal regulations as a "jurisdictional wetland"; site does not provide critical habitat for resident and/or migratory fauna and is not inhabited by rare native flora species; site represents only a remnant prairie or wetland that has been substantially impacted by anthropogenic activities such as grading, filling, structures, removal of vegetation, and or substantial habitat fragmentation; site is owned and operated by city, county, or state entity, or private individual or group most likely not willing to actively manage site to effectively preserve, restore, or enhance rare ecosystem features; protection of site will likely have little community support; protection of site will provide little potential to provide even a minimal wildlife habitat hub or linkage corridor.

WETLAND/PRAIRIE/SAVANNA SUBGROUP SITE CHARACTERIZATION SHEET

General Site Information

Date of site evaluation:	Site Name/Designation
Location/Street Address/lat&long	Property Owner & contact info
Has Owner been contacted and informed of GI strategy?	Map available for site?

Site Criteria/Score (Circle applicable score)

Estimated acreage	< 1.0 : 1 point	1.0 to 5.0: 2 points	>5.0 to 10.0 : 3 points	>10 to 20.0: 5 points	>20: 5 points/each 10 ac.
Habitat Type	disturbed/degraded field: 0 points	wetland : 1 point	Prairie: 3 points	wet prairie: 5 points	Savanna: 10 points
Rare plants present?	No – 0 points		Good potential – 1 point	Yes – 2 points	
Aquatic resource(s) present on site?	No – 0 points			Yes – 2 points	
Aquatic resource type?	Heavily used cattle pond 1 point	Clean pond 2 points	Channelized stream 3 points	Minimally disturbed stream 4 points	Marsh 5 points
Is aquatic resource is stream, does it have protected riparian zone?	Poor: 0 points		Fair: 1 point	Good: 2 points	
Is adjacent resource is wetland, does it have upland buffer zone?	Poor: 0 points		Fair: 1 point	Good: 2 points	
Potential as avian nesting habitat	Poor: 0 points		Fair: 1 point	Good: 2 points	
Potential seasonal use by migratory songbirds, waterfowl, shorebirds	Poor: 0 points		Fair: 1 point	Good: 2 points	
Mammal use –	Poor: 0 points		Fair: 1 point	Good: 2 points	
Amphibian/reptile use	Poor: 0 points		Fair: 1 point	Good: 2 points	
% Non-native/invasive plant species cover	>50%: 0 points		25%-50%: 2 points	<25%: 5 points	
Landowner interest in preservation/restoration	Poor: 0 points		Fair: 2 point	Good: 5 points	
Environmental features "Landscape Context" of surrounding area, such as topography, geology, soils, water resources, vegetation, zoning districts, land uses, wildlife habitat, Environmental regimes/processes (fire, flooding), Connectivity (ability of organisms to disperse/recolonize), public parks and farmlands: Rank, then describe in comments.	Poor 0 points		Fair 5 point	Good 10 points	
Site structure/ecological integrity/unique features: Current ecological conditions indicate site is a rare ecosystem remnant and considers degree of degradation and potential for preservation/restoration. Rank, then describe in comments.	Poor (severely degraded) 0 points		Fair (moderately degraded) 5-10 points	Good 10-20 points (minimally degraded)	
Potential to be critical Hub/Link -	Poor 0 points		Fair 5-10 points	Good 10-20 points	

HUB TYPE	LINK TYPE:
<p>Reserve: protected significant ecological site, including wildlife areas typically in their pristine state.</p> <p>10 points</p>	<p>Conservation Corridor: Linear area, such as river or stream corridor that serves primarily as biological conduits for wildlife and may provide recreational opportunities. Greenways and riparian buffer areas are examples of conservation corridors.</p> <p>10 points</p>
<p>Managed Native Landscapes: Large publicly owned lands, managed for resource extraction as well as natural and recreational values.</p> <p>8 points</p>	<p>Greenbelts: Protected natural lands or working landscapes that serve as a framework for development while also preserving native ecosystems and/or farms or ranchlands. They often act as partitions within a community – a form of visual and physical relief in the landscape – separating adjacent land uses and buffering the impacts of these uses. Farmland preservation areas can be considered greenbelts.</p> <p>8 Points</p>
<p>Working Lands: Private working lands, including farmland, forests, and ranch lands.</p> <p>6 points</p>	<p>Landscape Linkages: Open spaces that connect wildlife reserves, parks, managed and working lands and provide sufficient space for native plants and animals to flourish. In addition to protecting the local ecology, these linkages may contain cultural elements, such as historic resources, provide recreational opportunities and preserve scenic views that enhance the quality of life in a community or region. Landscape linkages may include streetscapes and recreational trail corridors.</p> <p>6 points</p>
<p>Parks and Open Space Areas: Landscapes at the national, state, regional, county, municipal and private level that may protect natural resources and/or provide recreational opportunities. Examples include public parks, natural areas, playgrounds, and golf courses.</p> <p>4 points</p>	<p>Traditional Landscaped Area: Is largely landscaped with non-native plant species on public/private lands subjected to routine excessive mowing/brush removal, but has some vegetative cover utilized by wildlife.</p> <p>4 points</p>
<p>Recycled Land: Land that was previously damaged by intense public or private use and that have since been restored or reclaimed. Mined lands, landfills or brownfields that have been improved in total or in part to provide an environmental function are examples of recycled lands.</p> <p>2 points</p>	<p>Utility Easement: Land where water, sewer, gas, or electrical lines have been constructed and vegetation is largely non-native species and vegetation management does not optimize wildlife habitat.</p> <p>2 points</p>

TOTAL SCORE: _____

APPLICABLE SITE CATEGORY*: _____

***CATEGORY RANK SCORE**

HUB SCORE CRITERIA
Category 1 Site: >60 to >120 points
Category 2 Site: 40 to 60 points
Category 3 Site: <40 points

RESULTS OF SITE EVALUATIONS

The site categorization results are as follows:

CATEGORY 1 SITES

SITE 2: Lake Fayetteville: North of Environmental Study Center, 30-40 acres of City-owned land

Existing Status and Management Needs: This site has large stands of native grasses such as little bluestem, big bluestem and Indian grass. It is well drained and no wetlands were observed, however, a small stream runs through the property. Oak/elm/hickory forests surround the grassland openings. Public access is available via paved trails, and it is our understanding that the site has some level of permanent protection. The condition of the site supports habitat for mammals and songbirds. The vegetation succession status appears to indicate that the site is minimally managed. Stands of eastern red cedar, smooth sumac, and blackberry are overtaking the grassland habitat, and it will continue to degrade without more aggressive management. A prescribed burn would serve well to maintain and restore this upland prairie. Bush-hogging and chainsaw cutting of larger woody plants will be needed in some areas. Burning and clearing should be done during the avian non-nesting seasons. It appears that fescue has been planted on the outer edges of the trails. Herbicide applications of sulfosulfuron should be completed in early spring or late fall while the fescue is actively growing and the native plants are dormant. A detailed plant species inventory should be conducted twice annually; once in May and again in October to fully evaluate the presence of rare species.



SITE 3: Wilson Springs: Clabber Creek Wet Prairie - Audubon Society owned 120 acres

Existing Status and Management Needs: This site exhibits prairie mounds (pimples) with inclusions of small scattered wetland areas in depressions between the mounds. This diversity in microtopography provides diversity in hydrology that, in turn, provides the potential to support a very diverse plant community. However, due to lack of vegetation management, the site is losing its prairie character and former grasslands are being replaced with thickets of brushy shrubs and trees. This is exacerbated by the fact that invasive species such as sericea lespedeza and tall

fescue continue to out-compete the native prairie forbs and grasses. This increases the potential for the loss of habitat for prairie birds and mammals. Audubon is in the process of implementing a vegetation management strategy to remove invasive plant species. In late February 2009, Audubon sponsored a volunteer day with the help of Sam's Club employees to begin removing callery pear trees. Over the years, more than 120 bird species have been documented for this site. The site is believed by local ornithologists to support the only known population of Henslow's Sparrow (*Ammodramus henslowii*) in northwestern Arkansas. Mike Mlodinow of Fayetteville discovered this rare and inconspicuous bird at the site, in 2001. This species is declining over most of its range, and has been found in Arkansas in the nesting season on only a few prairies. The only record in more than a decade is from a protected prairie south of the Arkansas River. Of particular concern is that some studies have suggested that Henslow's does not tolerate areas having high densities of woody vegetation.

Clabber Creek flows across the property, providing habitat for various species of fish, amphibians, and birds. This is the lowermost portion of Clabber Creek that is inhabited by the Arkansas darter (*Etheostoma cragini*) a small fish (2 to 3 inches long). The Arkansas darter has been designated as an Arkansas Species of Concern by the Arkansas Natural Heritage Commission, listed as a fish of Special Concern by the American Fisheries Society, and is a Candidate Species for federal listing as endangered by the US Fish and Wildlife Service.

The site is in need of an achievable vegetation management program that includes prescribed burning, bush-hogging and herbicide applications to control the growth of woody and invasive non-native plant density. A detailed plant species inventory is recommended. Audubon recently learned that they are the recipient of a state Wildlife Grant to support management efforts on the former wet prairie. They are in the process of developing a restoration plan for the site.

SITE 5: Woolsey Wet Prairie Sanctuary: City of Fayetteville-owned 30 acres of wetland mitigation with adjacent 70 acres of prairie and savanna.

Existing Status and Management Needs: This site is located immediately to the north of the City of Fayetteville's West Side Wastewater Treatment Plant and was established as a requirement by the Corps of Engineers for compensatory wetland mitigation due to wetland losses caused by the city's sewer improvement project. Restoration activities have included the construction of earthen berms to modify the hydrology, prescribed burns, mowing to prevent fescue from forming seedheads, and herbicide applications. Over a three-year period, the plant community has increased from 47 to 334 species. Seven of those plant species are Washington County records and are listed as Arkansas Species of Concern by the Arkansas Natural Heritage Commission. Adaptive management techniques have focused on creating conditions favorable to plant species that have been dormant within the seedbed for decades. Bird life is abundant and diverse, including songbirds, shorebirds, wading birds, waterfowl, and birds of prey. Woolsey Wet Prairie is listed as one of the nation's birding hotspots on "ebird.org" a website jointly sponsored by Cornell University and Audubon.

The City of Fayetteville owns an additional 70 acres of prairie/savanna complex that is adjacent to the site. The adjacent acreage is very amenable to be expanded into a wetland mitigation bank and

natural area. Approximately 20 acres of this tract is a rare hardwood savanna with large trees that were recently damaged by the January 2009 ice storm. Plans are underway to preserve as many of the damaged trees as possible. A draft prospectus has been prepared that will go before the City Council to make the final decision of a commitment of the additional 70 acres for the mitigation bank. More detailed information is available on the Woolsey Wet Prairie Sanctuary website at: <http://ecoarkansas.com/WoolseyMain.html>.



SITE 8: Broyles/Yates Prairie on Woolsey Farm Rd. next to school in Farmington, 40 acres owned by Mr. & Mrs. Carl Yates.

Existing Status and Management Needs: This 40-acre site is a remnant prairie with intact mounds (prairie pimples) and wet depressions between mounds. The southern-most 10 acres are predominately wet meadow (palustrine emergent wetland class PEM) that is progressing to Palustrine System Scrub-Shrub Wetland Class (PSS) due to lack of mowing. A small (approx. 3 acres) area in the extreme southwest corner has become Palustrine System Forested Wetland Class (PFO) as the green ash are taking over and shading out the understory. With continued lack of vegetation management, upland areas will evolve from grasslands to shrub/scrub habitat as eastern red cedar, elm, and honey locust will take over.

The W/P/SS has suggested vegetation management to the landowner to include bush-hogging to remove woody vegetation (most of the green ash and some of the cedar) that is taking over wet prairie depressions and uplands and a prescribed burn early in 2009 growing season. This would preserve prairie habitat and enhance plant species diversity. The City of Fayetteville owns property to the north, which includes forested and prairie areas (including Woolsey Wet Prairie) and headwaters of Goose Creek. Cattle pasture is located to the west, an elementary school to the east, and residential to the south. Several very large old growth bur oak and American elm trees were observed on the site. The Broyles/Yates property has good habitat diversity; onsite and nearby offsite aquatic resources; good connectivity to surrounding habitats primarily to the north; and an ecological integrity that supports wildlife. This site would fit very well into a local

hub/link network and could be easily managed with minimal periodic prescribed burning and mowing. The site visit made by the W/P/SS can be viewed at:

<http://greeninfrastructure.blogspot.com/2008/11/green-infrastructure-team-meets-on.html>

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TIFF (Uncompressed) decompressor
are needed to see this picture.

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CATEGORY 2 SITES

SITE 1: Stonebridge Meadows Golf Course (also known as Goff Farm): on approximately 10 acres on south side of Hwy.16E.

Existing Status and Management Needs: This is a small site that is somewhat isolated due to surrounding land use as a golf course. Various native prairie forbs and grasses are dominant, and a layer of tall fescue appears to be working its way into the community as a dominant. The site is sloped and a drainageway extends through the middle, creating areas that support wetland plant species. An interesting feature is the abundance of compass plants (*Silphium laciniatum*). This unique plant world has the ability for its leaves to orient themselves in a North and South direction. The compass plant supposedly served as a compass for prairie settlers traveling through who lost or forgot to bring a compass.

The manager of the property stated that they simply leave this area alone so that they can have a small “natural area”. The W/P/SS should contact the landowner to provide guidance about management of invasive species such as fescue, and inquire about getting seeds from mature compass plants next fall for use in restoration activities at other sites.



SITE 4: Zion Road: Sweetser owned land south of Zion Road – app. 5 acres.

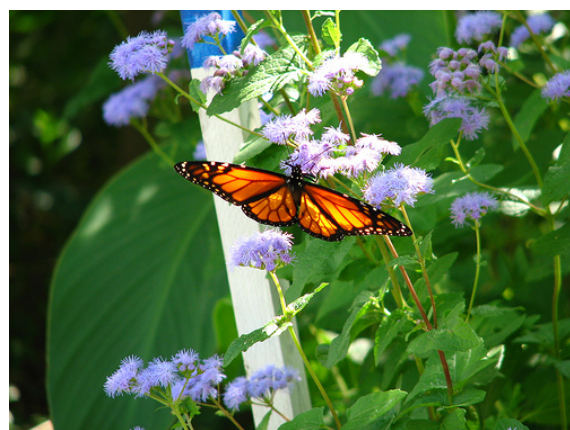
Existing Status and Management Needs: This is a very interesting site because it is small and surrounded by a densely populated residential area, yet has an extremely high quality prairie plant community. Big bluestem, little bluestem and Indiangrass are the dominant grasses, and the abundance of rattlesnake master (*Eryngium yuccifolium*) is a unique feature. This plant is a very odd member of the Carrot family that resembles a yucca or some other desert plant. However, it is a true tallgrass prairie species with a unique appearance. In previous times, Native Americans used the dried seedheads of rattlesnake master as rattles. Pioneers thought the roots could be used as an effective antidote to rattlesnake bites, hence the common name of this plant. However, this belief was erroneous.

The W/P/SS should contact the landowner to provide guidance about site management, and inquire about getting seeds from mature plants, and or digging and transplanting specimens, for use in restoration activities at other sites.



SITE 6: World Peace Wetland Prairie Park (and adjacent tract) south of Hwy. 16 on Duncan.

Existing Status and Management Needs: World Peace Wetland Prairie is a 2.5-acre city-owned nature park at 1121 South Duncan Avenue in Fayetteville, Arkansas. The land includes wetland prairie and savanna with rich, black soil and a mixture of hundreds of native plants typical of many similar areas being cleared for development all over Northwest Arkansas. Although small in size, it hosts an extremely diverse community of flora and fauna. It has served as a model for what can be achieved by volunteers who participate in the site management. In particular, Aubrey Shepherd has spent years providing stewardship to the site and has developed a website that can be found at: <http://www.worldpeacewetlandprairie.com/>



SITE 7: University of Arkansas Farm on Garland savanna & grassland fields.

Existing Status and Management Needs: This site of undetermined acreage appears to be a remnant savanna and prairie grassland area. The W/P/SS has not made a detailed site visit, and

little is known about the property use and management. The W/P/SS should contact the U of A to see if they could use the area as an educational demonstration project for ecological restoration.

SITE 12: Park West development west of Hwy 112.

Existing Status and Management Needs: This 140-acre property, owned by Paradigm, Inc., is a remnant wet prairie located in the Wilson Springs area. It has a small spring run that flows southward to Clabber Creek and is known habitat for the Arkansas darter. Paradigm President Tracy Hoskins observed the prescribed burn at Woolsey Wet Prairie on February 19, 2009 and immediately made arrangements for the burn contractor (Bill McKinney – Wildland, Inc.) to burn Park West. The entire 140 acres was burned on February 21, 2009. Hoskins plans to create a low impact development with restored wet prairie green space for passive recreation.



SITE 13: Broyles Savanna (Woolsey Farm Road)

Existing Status and Management Needs: This 2.5-3.0 acre site is a remnant upland post oak savanna that has a brushy understory. It is owned by the City of Fayetteville and is located directly north of the Broyles/Yates Prairie on Woolsey Farm Road. Vegetation management needs include cutting the understory by chainsaw/bush hog to restore prairie groundcover of native grasses and forbs.



CATEGORY 3 SITES

None

Community needs: It has been obvious to the W/P/SS that there is a common lack of public knowledge about the endangerment and need for management of vanishing Wetland/Prairie/Savanna ecosystems in Northwest Arkansas. Even those who do care about preserving and managing these ecosystems on their own land know very little about vegetation management. Bruce Shackleford is developing the “**Prairie Stewardship Network**” as a hyperlink to the Woolsey Wet Prairie website. This site will include published articles from ecological restoration journals to educate the public about ecosystem restoration and vegetation management tools. Individuals will also be able to make inquiries about management issues via email.

**GREEN INFRASTRUCTURE PLANNING
ENVIRONMENTAL WORKING GROUP
Springs Subgroup**

Data from USGS 7 ½ min Topographic Maps (NAD 83 UTM/UPS Coordinates Zone 15S)

Recap: 44 Springs on USGS topos and in the study area. One spring outside area is listed, and one spring not on maps is listed.

Name	Easting	Northing	Area Center		Ref.
Hewitt Spring (Not in area)	0402396	4003583	0401500	4002000	*
	039611	4001080			1
	0394381	4000293	039500	4002000	2
	0394095	4000866			3
	0389804	40015005	0391500	4002000	4
	0390038	4001995			5
	0388445	4001310	0387681	4003000	6
	0385167	4001380			7
	0384105	4001909			8
	038154	4003386	0381500	4002000	9
	0383078	4002601			10
	0381814	4001831			11
	0383601	4001536			12
	0382934	4000743			13
	0382387	4000067			14
	0378604	45003980	0376575	4002000	15
<u>Springs</u>	0377920	4000068			16
	0375529	3996501	0376500	3998000	17
Fish hatchery (Savoy area)	0378412	3996456			18
	0380175	3997071	0381539	3998001	19
	0382456	3997083			20
	0382597	3996729			21
	0387985	3998057	0386500	3998000	22
<u>Springs</u>	0389714	3998675	0391500	3998000	23
	0389314	3998626			23A
Greathouse Spring	0391785	3999772			24
<u>Springs</u>	0392032	3998657			25
(Chris Hollow Rd.)	0393529	3998520			26
	0397990	3996705	0396500	3998000	27
<u>Springs</u>	0397387	3999260			28
			0401500	3998000	
			0401500	3994000	
(Craft Park, not on map)	0397092	3993814	0396500	3994000	28A
			0391000	3994000	
	0388874	3992819	0386500	0394000	29

Springs (Double Springs)	0385743	3993955			30
	0384188	3995032			31
Elkhorn Springs (On Viney Grove Rd.)	0382341	3992188	0381500	3994000	32
	0378856	3994752	0376500	3994000	33
			0376500	3990000	
			0381500	3990000	
	0384292	3990200	0386500	3999000	34
	0384675	3989988			35
0386793	3991062			36	
Tin Cup Spring	0396038	3991804	0391500	3990000	
			0396500	3990000	
			0401500	3990000	
			0401500	3986000	
			0396500	3986000	
			0391500	3986000	
Ruby Spring	0385906	3985987	0386500	3986000	37
	0386226	3986341			38
	0382129	3987772	0381480	3986000	39
	0382717	3987395			40
	037426	3986923	0376500	3786000	41
			0376500	3982000	
Living Water Spring	0380393	3983588	0381500	3982000	42
			0386500	3982000	
			0391500	3982000	
			0396500	3982000	

Note: Wilson Spring of Fayetteville is not shown. It is in the vicinity of I-540 and AR 112.

* This is an area of interest respective to Springdale, Webber Mountain, etc.

Area Map List
7 ½ minute Topographic Maps

Sonora
Springdale
Robinson
Gallatin
Rhea
Wheeler
Fayetteville
Elkins
Sulfur City
West Fork
Prairie Grove
Rudy NE