Project Summary: Using the International Mountain Biking Association's sustainable design standards, the Friends of Turkey Creek propose to re-align and construct 1,015' of sustainable natural surface trail with planning, design, and construction completed under contract with American Youth Works' E-Corps. Upon the completion of this trail segment, American Youth Works (AYW) will close, block, and begin approved restoration activities of the current 715' natural fall line trail. The Friends of Turkey Creek (FOTC) will provide ongoing volunteer support, monitoring, and reporting throughout the next 24 months.

Introduction: A core value of the BCP Trail Master Planning process is the construction, restoration, and maintenance of sustainable authorized trails, both within and outside of the dual-managed properties. At its most fundamental, the Friends' overall Trail Master Planning proposal captures and operationalizes each of these critical elements. While the construction of the new segment is, perhaps, the most visible manifestation of the Friends' stewardship, the following proposal outlines the critical task of restoring the natural fall line trail by identifying the Friends' Goals and Objectives, reviewing current conditions by zones, identifying zone-specific restoration activities, and monitoring benchmarks.

Section 1: Goals and Objectives

Using the US Fish and Wildlife Services' Habitat and Wildlife Goals and Objectives protocol, the Friends of Turkey Creek's restoration activities are designed to achieve the following[1]:

Goal 1: To minimize, as practicable, the ongoing erosion of and damage to the trail segment by slowing and dispersing the flow of water during rain events and capturing organic material that provide the nutrient base for successful restoration between 2010 and 2012

This goal will be met through the following five objectives:

> **Objective 1:** To use trail restoration and grade stabilization strategies, such as trail armoring, check dam construction, seed bag and mulch tube placement, soil agitation, retaining walls, native species planting, and other strategies, as practicable, within breeding season constraints between February 2010 and March 2012;
>
> **Objective 2:** To block physically user access to the 715' trail segment to be restored through obstructions and visual barriers constructed by E-Corps by 28 February 2010;

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[1] US Fish and Wildlife Service. 2007. Habitat and Wildlife Goals and Objectives. *http://www.wilderness.net/toolboxes/documents/fishwildlifemgmt/Writing Wildlife&Habitat G&O Nov 2007.pdf*

Objective 3: To enhance the effectiveness of these physical barriers with the deployment of trail peers between March- May 2010 and with attribution and injunctive-proscriptive signage erected between March 2010 through March 2012;

Objective 4: To monitor and report on the effectiveness of these tools and strategies annually with photographic monitoring completed every six months between March 2010 through March 2012; and

Objective 5: To modify and/or enhance these tools and strategies, as necessary, in collaboration with the BCP, Parks, the Austin Parks Foundation, American Youth Works, and other community resource experts between December 2009 through March 2012

Goal 2: To promote, support, and maximize vegetation and site stability along the closed trail such that this segment resembles that of adjacent habitats within eight years. Progress toward this goal will be made through the following five objectives:

Objective 1: Photographic documentation taken from fixed points demarcated by zone tags will be taken every six months to gauge progress

Objective 2: In June 2011, the Friends of Turkey Creek will initiate a six month Second Phase Trail Restoration Updated Plan for the period of April 2012- March 2014, building on those strategies and practices that have proven successful and proposing additional or different initiatives where efforts have not been. In collaboration with the BCP, Parks Department, the Austin Parks Foundation, American Youth Works, and other community resource experts, this Updated Plan will serve as the template for ongoing vegetation and stabilization efforts.

Objective 3: In June 2013, the Friends of Turkey Creek will initiate a six month Third Phase Trail Restoration Updated Plan for the period of April 2014- March 2016. As with the first update, this Third Phase will build on the successes and challenges noted at the time of its initiation.

Objective 4: In June 2015, the Friends of Turkey Creek will initiate a six-month Fourth Phase Trail Restoration Updated Plan for the period of April 2016- March 2018. As with the previous updates, this Fourth Phase will build on the successes and challenges noted at the time of its initiation.

Objective 5: The Friends of Turkey Creek, working with the Austin Parks Foundation, will recruit volunteers to sustain this effort

Section 2: Restoration Zones

Although the area to be restored measures only 715 feet, the segment presents a varied mix of challenges. This diversity is attributable to the combination of natural and user-generated conditions, including the slope and geology of the current fall line trail segment, varying degrees of sunlight available through dispersed natural openings within the canopy, proximity to water, the saturation of ground cover and plant communities, and the degree of erosion.

Photo 1: Zone Tags

This variability makes it unlikely that any ***single*** set of meaningful restoration strategies, even if diligently applied, would be sufficient to meet the variety of conditions along the segment.

To meet its objective, the Friends will use a modified census-based approach, "where a trail is divided into sections" with assessments, restoration, and monitoring is designed "for each section."[2] The Friends of Turkey Creek have identified five zones, each of which have been defined and demarcated deliberately with the intention of spatially aggregating common challenges, conditions, and probable restoration strategies to the extent possible.

Because the restoration and its monitoring will take place over multiple years with a predominantly volunteer labor force, each zone and its boundaries have been physically demarcated through a series of labeled tags and washers physically affixed to cedars. (See Photo 1: Zone Tags) Although a simple system, these visible boundaries will allow the Friends to document restoration activities, monitor their

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[2] Marion, J.L., Leung, Y-F., and S,K. Nepal. 2006. Monitoring Trail Conditions: New Methodological Considerations, 37. *George Wright Forum* 23:2:36- 49.

success, and provide consistent points by zone from which success and challenges can be photographically documented.

Section 3: FOTC Grade Stabilization and Erosion Control Protocols

Reflecting the significant variation in condition and grade within and between each of the five zones, specific stabilization strategies will be identified during the process of field engineering by highly experienced AYW staff. Although the strategies may differ by zone, AYW will use the Appalachian Trail Conference's "rules of thumb" in which they check dams are recommended every 20 feet with drainage features every 75 feet to get rid of excess water where grades exceed 5% and every 50 feet where slopes range in grade between 1% - 5%.[3] Per the Conference best practices, erosion control practices, including mulch socks, brush fences, seed sacks, etc. will also be used for grade stabilization between each check dam such that exposed soil is kept to under 25%. [4]

[3] The Friends of Turkey Creek have opted to use the Appalachian Trail Conference's protocols on check dams, etc., choosing to deflect IMBA's generalized discouragement of check dams and diversion bars as unfriendly to bicycles and bicyclists.

[4] Birchard, W. and R.D. Proudman. 2000. *Appalachian Trail Design, Construction, and Maintenance, Second Edition.* Harpers Ferry, WV: Appalachian Trail Conference.

Section 4: Zone-by-Zone Restoration Plan

To capture the challenges and restoration strategies systematically, the Friends of Turkey Creek have developed a Zone-by-Zone Restoration Plan, originally used in a similar slope restoration effort in Calgary. For each zone, challenges, photographs of the current conditions, proposed restoration activities, and measures of success are outlined.

Zone A Challenges:

Marking the entry into the segment to be closed, the base shows sign of erosion

Channels and gullies that serve as conduits during rain events mark the area

Plant communities are dispersed

Built along a natural fall line, the trail rapidly ascends

Zone A Restoration Practices

Issue	Restoration Activity	Year/(Party)
Overall sustainability of existing entry	Relocate the entry point and shift its orientation to a diagonal entry; Close existing trail in Zone A, cover with brush, seed bags, mulch tubes, and/or other revegetation tools	2010 (AYW E-Corps)
Erosion-caused “soft” spots in/around the existing entry	Use armored crossing, rock steps, and/or retaining walls to fortify area at the base of the trail and minimize erosion	2010 (AYW E-Corps)

Sparse plants	Seed site-sensitive native grasses, specifically those that thrive in an area with full sun and low-soil moisture, along base of newly relocated entry point and along the Creek's edge; Monitor for weeds and invasive species	2010 (FOTC)
Minimizing user impact in/around existing entry point	Use physical barriers to block access to existing entry point, including brush, rock, and other indigenous resources	2010 (AYW E-Corps)
Deterring users from closed trail segment, shift to new more sustainable trail	Erect attribution signage; Station trail peer for further encouragement	2010 (FOTC)
Monitor effectiveness of restoration strategies to combat erosion and deter users	Monitor effectiveness of restoration strategies to combat erosion with photographs taken every six months and deter users, using trail peers, for real-time information	2010- 2012 (FOTC)

Zone A Measures of Success:

The following measures will be used to gauge the success of the restoration effort:

1. Relocation of the entry point
2. Closure of the trail in zone A
3. Development of armored crossing, rock steps, and/or retaining walls that fortify the base
4. A 20% increase in native grasses along the base of the newly relocated entry point/Creek's edge as documented photographically.
5. Development and posting of attribution signage that explains the value of using the new entry point and staying on the new trail
6. Three month monitoring of the area by the trail peer
7. Ongoing reporting every six months

Should monitoring reveal that restoration strategies or individual practices are not meeting goals and objectives, plans will be revised and additional practices implemented as appropriate in order to more fully accomplish those goals and objectives. As these alternate restoration strategies and practices are required, the FOTC will prompt discussion and agreement with BCP and PARD staff.

Zone B Challenges:

Built along a natural fall line, the trail rapidly ascends.

Significant erosion is evident.

Little nutrient matter is readily available with limited sunlight

Zone B Restoration Practices

Issue	**Restoration Activity**	**Year/(Party)**
Overall sustainability of existing Zone B	Close existing trail in Zone B, cover with brush, seed bags, mulch tubes, and/or other revegetation tools that will capture organic materials	2010 (AYW E-Corps)
Significant erosion	Implement grade stabilization features, including check dams, brush fences, seed sacks, etc. throughout the Zone B that will catch soil and slow the flow of water during rain events and divert flow into natural channels and away from gullies	2010 (AYW E-Corps)
Sparse plant communities	Agitate soil; Weed and clean soil, as practical; Seed and minimally cover a shade-tolerant grass mix, specifically a blend that provides a high potential	2010 (AYW E-Corps); 2010- 2012 (FOTC) with initial work completed post-GCWA 2010 breeding

	for revegetative success, along the old trail; Inspect for invasives	season
Minimizing user access	Use physical barriers to block access, including brush, rock, and other indigenous resources	2010 (AYW E-Corps)
Monitor effectiveness of restoration strategies to combat erosion and deter users	Monitor effectiveness of restoration strategies to combat erosion with photographs taken every six months and deter users, using trail peers, for real-time information	2010- 2012 (FOTC)

Zone B Measures of Success:

The following measures will be used to gauge the success of the restoration effort:

1. Closure of the trail in Zone B
2. Visual coverage of, at least, 50% of the closed trail, using brush, seed bags, mulch tubes, and/or other tools
3. Construction of appropriate grade stabilization and erosion control structures per the FOTC protocol
4. A 20% increase in shade tolerant grasses as documented photographically
5. Three month monitoring of the area by the trail peer
6. Ongoing reporting every six months

Should monitoring reveal that restoration strategies or individual practices are not meeting goals and objectives, plans will be revised and additional practices implemented as appropriate in order to more fully accomplish those goals and objectives. As these alternate restoration strategies and practices are required, the FOTC will prompt discussion and agreement with BCP, PARD, and AYW staff.

Zone C Challenges:

The trail is significantly eroded

The trail has widened

A significant rock formation forms a cliff with a significant drop

A switchback being constructed for the new trail will cross the existing trail in this zone

Little nutrient material is available with minimal sunlight

Zone C Restoration Practices

Issue	**Restoration Activity**	**Year/(Party)**
Overall sustainability of existing Zone C	Except where the switchback being constructed for the new trail touches the existing trail, close the trail in Zone C. Cover Zone C with brush, seed bags, mulch tubes, and/or other revegetation tools that will capture nutrient materials.	2010 (AYW E-Corps)
Minimize erosion between switchback and existing trail	Seed bags will be strategically positioned above and below the point where the switchback meets the existing trail. Use retaining wall to capture nutrient materials.	2010 (AYW E-Corps)
Control erosion	Implement grade stabilization features, including check dams, brush fences, seed sacks, etc. throughout Zone C that will catch soil and slow the flow of water during rain events and divert flow into natural channels and away from gullies	2010 (AYW E-Corps)

Sparse plant communities	Agitate soil; Weed and clean soil, as practical; Seed and minimally cover a shade-tolerant grass mix, specifically a blend that provides a high potential for revegetative success, along the old trail; Inspect for invasives	2010 (AYW E-Corps); 2010- 2012 (FOTC) with initial work completed post-GCWA 2010 breeding season
Minimizing user access	Use physical barriers to block access, including brush, rock, and other indigenous resources with. specific focus on minimizing access in/around the switchback	2010 (AYW E-Corps)
Deterring users from using the trail segment	To minimize overall access to the trail segment, erect attribution signage; Station trail peer for further encouragement	2010 (FOTC)
Monitor effectiveness of restoration strategies to combat erosion and deter users	Monitor effectiveness of restoration strategies to combat erosion with photographs taken every six months and deter users, using trail peers, for real-time information	2010- 2012 (FOTC)

Zone C Measures of Success:

The following measures will be used to gauge the success of the restoration effort:

1. Closure of the trail in Zone C, except in the area where the switchback meets the existing trail
2. Visual coverage of, at least, 50% of the closed trail, using brush, seed bags, mulch tubes, and/or other tools
3. Installation of seed bags above and below the point where the switchback meets the existing trail with the development of a retaining wall, as needed
4. Construction of appropriate grade stabilization and erosion control structures per the FOTC protocol
5. A 20% increase in site-sensitive foliage along the trail's edge as documented photographically
6. Development and posting of attribution signage at/near the switchback that explains the importance of remaining on the new trail
7. Three month monitoring of the area by the trail peer
8. Ongoing reporting every six months

Should monitoring reveal that restoration strategies or individual practices are not meeting goals and objectives, plans will be revised and additional practices implemented as appropriate in order to more fully accomplish those goals and objectives. As these alternate restoration strategies and practices are required, the FOTC will prompt discussion and agreement with BCP, PARD, and AYW staff.

Zone D Challenges

The trail has eroded

The trail has widened

Limited organic material is available

Zone D Restoration Practices

Issue	**Restoration Activity**	**Year/(Party)**
Overall sustainability of existing Zone D	Close the trail in Zone D. Cover Zone D with brush, seed bags, mulch tubes, and/or other revegetation tools that will capture nutrient materials.	2010 (AYW E-Corps)
Control erosion	Use check dams and brush fences throughout Zone D that will catch soil and slow the flow of water during rain events and divert flow into natural channels and away from gullies	2010 (AYW E-Corps)
Sparse plant communities	Seed shade-tolerant native plants, specifically those that are particularly well-suited for fairly difficult conditions that will also provide both ground cover and visual diversity	2010- 2012 (FOTC)

Minimizing user access	Use physical barriers to block access, including brush, rock, and other indigenous resources	2010 (AYW E-Corps)
Deterring users from using the trail segment	To minimize overall access to the trail segment, erect attribution signage; Station trail peer for further encouragement	2010 (FOTC)
Monitor effectiveness of restoration strategies to combat erosion and deter users	Monitor effectiveness of restoration strategies to combat erosion with photographs taken every six months and deter users, using trail peers, for real-time information	2010- 2012 (FOTC)

Zone D Measures of Success:

The following measures will be used to gauge the success of the restoration effort:

1. Closure of the trail in Zone D
2. Visual coverage of, at least, 50% of the closed trail, using brush, seed bags, mulch tubes, and/or other tools
3. Construction of appropriate grade stabilization and erosion control structures per the FOTC protocol
4. Development and posting of attribution signage above the switchback that explains the importance of remaining on the new trail
5. A 30% increase in site-sensitive foliage along the trail's edge as documented photographically
6. Three month monitoring of the area by the trail peer
7. Ongoing reporting every six months

Should monitoring reveal that restoration strategies or individual practices are not meeting goals and objectives, plans will be revised and additional practices implemented as appropriate in order to more fully accomplish those goals and objectives. As these alternate restoration strategies and practices are required, the FOTC will prompt discussion and agreement with BCP, PARD, and AYW staff.

Zone E Challenges:

The trail demonstrates ongoing erosion

The trail has widened considerably

The area has alternating patches of vegetation and compaction

Zone E Restoration Practices

Issue	**Restoration Activity**	**Year/(Party)**
Overall sustainability of existing Zone E	Relocate the top entry point; Close the trail in Zone E. Cover Zone E with brush, seed bags, mulch tubes, and/or other tools, particularly in areas of sparse vegetative cover	2010 (AYW E-Corps)
	Install directional signage that guides trail users	2010 (FOTC)

	Install attribution signage that explains the importance of the new entry point	2010 (FOTC)
Patchy plant coverage	Seed shade-tolerant native plants, specifically those that are particularly well-suited for fairly difficult conditions that will also provide both ground cover and visual diversity	2010- 2012 (FOTC)
Minimizing user access	Use physical barriers to block access, including brush, rock, and other indigenous resources	2010 (AYW E-Corps)
Deterring users from using the trail segment	To minimize overall access to the trail segment, erect attribution signage; Station trail peer at the new top entry point to the new trail for further encouragement	2010 (FOTC)
Monitor effectiveness of restoration strategies to combat erosion and deter users	Monitor effectiveness of restoration strategies to combat erosion with photographs taken every six months and deter users, using trail peers, for real-time information	2010- 2012 (FOTC)

Zone E Measures of Success:

The following measures will be used to gauge the success of the restoration effort:

1. Relocation of the entry point
2. Use of directional signage that specifically identifies the new entry point
3. Development and posting of attribution signage that explains the re-location of the entry point
4. Closure of the trail in Zone E
5. Visual coverage of, at least, 50% of the closed trail, using brush, seed bags, mulch tubes, and/or other tools
6. A 30% increase in site-sensitive foliage along the trail's edge as documented photographically
7. Three month monitoring of the area by the trail peer
8. Ongoing reporting every six months

Should monitoring reveal that restoration strategies or individual practices are not meeting goals and objectives, plans will be revised and additional practices implemented as appropriate in order to more fully accomplish those goals and objectives. As these alternate restoration strategies and practices are required, the FOTC will prompt discussion and agreement with BCP, PARD, and AYW staff.

Appendix A:
Plant Restoration Strategies and Tools

Zone A:

Strategies: Seed/transplant site-sensitive native grasses, specifically those that thrive in an area with full sun and low-soil moisture, along base of newly relocated entry point and along the Creek's edge.
Site-appropriate species as identified by the BCP and PARD staff:
Buffalograss, side-oats gramma, little bluestem, hairy gramma, and Alamo switchgrass.

Plant Restoration Strategies and Tools:
Seed Switchgrass: A fast-growing grass that offers excellent erosion control benefits at an affordable price, the Friends will purchase one pound of switchgrass seed from Native American Seed. The seeding rate of one pound is 10,800 sq. feet. However, to increase survival, the Friends of Turkey Creek will broadcast seed the area at triple/quadruple its average seed rates to increase coverage sooner between March and May 2010 when soil temperatures are above 50 to 55 degrees. To further enhance increase survival, the area will be lightly mulched post-planting. During the year that follows the seeding, the Friends will inspect the area for invasive weeds and/or species.[5] Photographic documentation will be used to gauge progress.

Zone B:
Strategies: Seed shade-tolerant grass mix, specifically those that are particularly well-suited for revegetating disturbed areas in difficult conditions.
Site-appropriate species as identified by the BCP and PARD staff:
Inland seat oats, purpletop, plains bristlegrass, and big muhly

Plant Restoration Strategies and Tools:
Seed Plains Bristlegrass: A hardy perennial native bunch grass with a high tolerance for drought and tough conditions at an affordable price, the Friends will purchase six pounds of seed from Native American Seed. The seeding rate of one pound is 7,200 square feet. However, to increase survival, the Friends of Turkey Creek will broadcast seed the area at triple/quadruple its average seed rates to increase coverage sooner broadcast seeding in the late fall-early winter 2010 before GCWA breeding season begins in 2011. To further enhance increase survival, the area will be cleaned and weeded as

[5] Data on seeding ratios found at Native American Seed at www.seedsource.com Information on broadcast seeding and survival protocols drawn from the USDA's National Resources Conservation Service's *Native Warm Season Grasses for Georgia, Alabama, and South Carolina- Report* (September 1999) at www.bugwood.org/productivity/pdfs/NRCSWSNG-Rx.pdf

practicable with the seeds covered no more than ½" with native soils.[6] During the year that follows the seeding, the Friends will inspect the area for invasive weeds and/or species. Photographic documentation will be used to gauge progress.

Zone C:

Strategies: Seed shade-tolerant grass mix, specifically those that are particularly well-suited for revegetating disturbed areas in difficult conditions.

Site-appropriate species as identified by the BCP and PARD staff:

Inland seat oats, purpletop, plains bristlegrass, and big muhly

Plant Restoration Strategies and Tools:

Use Plains Bristlegrass: A hardy perennial native bunch grass with a high tolerance for drought and tough conditions at an affordable price, the Friends will purchase six pounds of seed from Native American Seed. The seeding rate of one pound is 7,200 square feet. However, to increase survival, the Friends of Turkey Creek will broadcast seed the area at triple/quadruple its average seed rates to increase coverage sooner broadcast seeding in the late fall-early winter 2010 before GCWA breeding season begins in 2011. To further enhance increase survival, the area will be cleaned and weeded as practicable with the seeds covered no more than ½" with native soils.[7] During the year that follows the seeding, the Friends will inspect the area for invasive weeds and/or species. Photographic documentation will be used to gauge progress.

Zone D:

Strategies: Seed shade-tolerant native plants, specifically those that are particularly well-suited for fairly difficult conditions that will also provide both ground cover and visual diversity

Site-appropriate species as identified by the BCP and PARD staff:

Rough leaf dogwood, American beautyberry, Texas redbud, Spanish oak, Mexican buckeye, Carolina buckthorn, Texas mulberry, red buckeye, escarpment black cherry, shrubby boneset, Eve's necklace,

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[6] Data on seeding ratios found at Native American Seed at www.seedsource.com Required growing conditions, cultivation, and care information drawn from the USDA's National Resources Conservation Service's PLANTS Database. www.gardenguides.com/taxonomy/plains-bristlegrass-setaria-vulpiseta/

[7] Data on seeding ratios found at Native American Seed at www.seedsource.com Required growing conditions, cultivation, and care information drawn from the USDA's National Resources Conservation Service's PLANTS Database. www.gardenguides.com/taxonomy/plains-bristlegrass-setaria-vulpiseta/

Lindheimer's crownbeard, dwarf palmetto, cedar sedge, Turk's cap, coralberry, frogfruit, cedar sage, straggler daisy, frostweed, common petunia, and Missouri violet

Plant Restoration Strategies and Tools:

Propagate American Beautyberry softwood cuttings: A deciduous shrub that thrives in shady areas, mature American Beautyberries are currently found along Turkey Creek Trail. In late fall-early winter 2010, the Friends will dig 6 – 9 volunteer seedlings from the most mature plants for re-planting in areas of Zone D where the plant has sufficient area to sprawl. (The rationale for the multiple volunteer seedlings is the low germination percentage.) After planting, the cutting will be monitored for progress, challenge from other species, and for deer browse if/when plants begin to take root. [8]

Seed Turk's Cap: Drought-tolerant with a penchant for partially-shaded areas along the edge of wooded areas, Turk's Cap seeds are available through Native American Seeds at a fairly reasonable price. The Friends will plant and cover the seeds at depths no deeper than ¼- ½" in early spring 2010 after the danger of frost has passed in areas in Zone D where the plant has sufficient area to sprawl. After planting, the Friends will provide ongoing watering in the earliest phase of the plant's growth if rain is not sufficient. Once rooted, Turk's cap can be kept cut back, providing a blooming red ground cover. [9]

Propagate Cedar Sage cuttings: A perennial herb that already thrives along the Trail, cedar sage will be propagated through cuttings by the Friends that are strategically re-planted under the multiple cedars in Zone D.

Zone E:

Strategies: Seed shade-tolerant native plants, specifically those that are particularly well-suited for fairly difficult conditions that will also provide both ground cover and visual diversity

Site-appropriate species as identified by the BCP and PARD staff:

Rough leaf dogwood, American beautyberry, Texas redbud, Spanish oak, Mexican buckeye, Carolina buckthorn, Texas mulberry, red buckeye, escarpment black cherry, shrubby boneset, Eve's necklace, Lindheimer's crownbeard, dwarf palmetto, cedar sedge, Turk's cap, coralberry, frogfruit, cedar sage, straggler daisy, frostweed, common petunia, and Missouri violet

Plant Restoration Strategies and Tools:

Propagate American Beautyberry softwood cuttings: A deciduous shrub that thrives in shady areas, mature American Beautyberries are currently found along Turkey Creek Trail. In late fall-early winter

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[8] Information about the American Beautyberry taken from "Ask Mr. Smarty Plants," a service provided by the staff and volunteers at the Lady Bird Johnson Wildflower Center. www.wildflower.org/expert/show.php?id=1506

[9] Information about the Turk's Cap taken from "Ask Mr. Smarty Plants," a service provided by the staff and volunteers at the Lady Bird Johnson Wildflower Center. www.wildflower.org/expert/show.php?id_plant=MAARD

2010, the Friends will dig 6 – 9 volunteer seedlings from the most mature plants for re-planting in areas of Zone D where the plant has sufficient area to sprawl. (The rationale for the multiple volunteer seedlings is the low germination percentage.) After planting, the cutting will be monitored for progress, challenge from other species, and for deer browse if/when plants begin to take root. [10]

Seed Turk's Cap: Drought-tolerant with a penchant for partially-shaded areas along the edge of wooded areas, Turk's Cap seeds are available through Native American Seeds at a fairly reasonable price. The Friends will plant and cover the seeds at depths no deeper than ¼- ½" in early spring 2010 after the danger of frost has passed in areas in Zone D where the plant has sufficient area to sprawl. After planting, the Friends will provide ongoing watering in the earliest phase of the plant's growth if rain is not sufficient. Once rooted, Turk's cap can be kept cut back, providing a blooming red ground cover. [11]

Propagate Cedar Sage cuttings: A perennial herb that already thrives along the Trail, cedar sage will be propagated through cuttings by the Friends that are strategically re-planted under the multiple cedars in Zone E.

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[10] Information about the American Beautyberry taken from "Ask Mr. Smarty Plants," a service provided by the staff and volunteers at the Lady Bird Johnson Wildflower Center. www.wildflower.org/expert/show.php?id=1506

[11] Information about the Turk's Cap taken from "Ask Mr. Smarty Plants," a service provided by the staff and volunteers at the Lady Bird Johnson Wildflower Center. www.wildflower.org/expert/show.php?id_plant=MAARD