Ecological Management Schedule

Site	**Swallow Cliff**	Date	**2017 - 2019**
Site Number	**3303**	Prepared	**2017**
Site Steward	**Jackie Majdov**	Regional Ecologist	**Kristin Pink**

Overview: Swallow Cliff Woods is a 740-acre preserve near Palos Park. The site is characterized by moraine topography of varying dissection, an ancient glacial sluiceway, and the intervening bluff. Geologic deposits of Valparaiso till are generally thin and underlain by fine sand and silt. The name Swallow Cliff references the highly erodible nature of these deposits: bank swallows nested in the soft exposures made by an early 20th century road cut. The site represents the prairie-to-forest transition which formed from the interplay of topography, fire, and flowing water over thousands of years. To the north, the low outwash plain formerly sustained wet prairie and sedge meadow (now much disturbed). The north-facing bluff and ravine slopes contain mesic and dry-mesic forest. Level uplands support dry-mesic woodland, savanna, and prairie. Marsh and sedge meadow occur throughout the site. Swallow Cliff's high-quality remnant natural communities, significant biodiversity, and position among the greater Palos-Sag Valley Preserve Complex make it a high priority for restoration and protection.

Site Conditions: Much of Swallow Cliff supports quality remnant habitat, although continued land management work is needed to mitigate past disturbances (principally grazing and cultivation) and contemporary recreational pressure. Many areas have tree densities greater than pre-European contact, and a resulting lack of adequate sunlight has suppressed ground layer vegetation. This is particularly problematic on steep ravine slopes where the fibrous roots of native grasses and sedges serve to stabilize soil. Invasive brush has overrun unmanaged areas. Development of the greater watershed altered hydrological flow resulting in permanent damage to the site's natural character (for example, historic springs no longer flow). Above all, current visitor abuse (mainly off-trail use) is the greatest threat to the ecology of Swallow Cliff. The namesake topography of the site is an attractant to cyclists, equestrians, joggers, and hikers who have denuded entire ravine slopes in their quest to 'conquer Swallow Cliff.'

Goals: Stewardship of Swallow Cliff is focused on restoration of community structure through removal of nonnative species, selective thinning of native trees, and prescribed burning across the site. Seed collection and dispersal may be important to restore areas with a history of grazing or cultivation. Restoration of highly disturbed areas (PR01, UW01) may require complete reconstruction and is a lower priority for resources.

Alignment of Resources: Recent contract restoration efforts include more than 70 acres of invasive brush removal in WO01, WO02, WO03, PR02, FO02, and MA10; herbaceous invasive removal in WO01, PR02, MA07, and MA10; and tree thinning in FO02. Interns cleared brush around MA01. Staff controlled herbaceous invasive plants in FO02 and expanded fire management now totaling 400 acres. Veteran volunteer stewards focused on invasive brush removal in PR02 and continue to be vocal supporters of protection for the site. A complementary volunteer initiative lead by FPCC staff targeted invasive brush in southwestern WO02 while recruiting new volunteers to expand the culture of caring.

In Winter 2017-2018, FPCC staff will remove cottonwood trees from PR02 to restore prairie community structure and improve groundwater flow. Time permitting, staff will also thin trees in WO01. Follow-up on previous contractor projects will continue as necessary.

Overall Goals:	**A. Restore community structure and function** **B. Expand existing native plant communities** **C. Reduce invasive species populations**			
Unit	**Management Objective**	**Activity**	**Notes**	**Crew**
WO01, WO03, WO02	Restore woodland and savanna natural communities	Remove nonnative trees, shrubs, and vines by cutting; targets include Asian bush honeysuckle (*Lonicera* spp.), smooth arrow-wood (*Viburnum recognitum*), Japanese barberry (*Berberis thunbergii*), common buckthorn (*Rhamnus cathartica*), multiflora rose (*Rosa multiflora*), and Oriental bittersweet (*Celastrus orbiculatus*); stack and burn debris or scatter where appropriate; apply herbicide to cut stumps; consider flagging native shrubs in green to prevent accidental removal	Late Su, Fa, Wi (firm or dry ground)	Volunteers, Corps, Contractors
		Treat brush resprouts with foliar herbicide	Sp, Su (after full leaf expansion)	Volunteers, Corps, Contractors
		Remove garlic mustard (*Alliaria petiolata*) by hand-pulling or cutting at ground level; pile debris in low quality areas on-site; populations of garlic mustard are generally scattered	Sp, Su (after plants have bolted)	Volunteers, Corps
		Remove other herbaceous invasive plants using best practices; targets include reed canary grass (*Phalaris arundinacea*), nonnative thistle (*Cirsium* spp.), and black swallow-wort (*Cynanchum louiseae*); some nonnative plants are present along trail and road edges but may not warrant control	Sp, Su, Fa	Volunteers, Corps, Contractors

		Thin native trees by cutting where necessary to bolster native ground layer vegetation; stack and burn debris or leave on ground where not ecologically sensitive; plans to remove trees >12" diameter should be reviewed with the ecologist	Wi (firm or dry ground)	Volunteers, Corps, Staff
		Collect and scatter seed sourced from Swallow Cliff (first preference) or the Sag Valley Region (second preference); plans to introduce species not previously known to occur at the site should be discussed with the ecologist; report to the ecologist the species, source, and location where distributed of any seed originating outside Swallow Cliff*	Sp, Su, Fa	Volunteers, Corps, Staff
		Conduct prescribed burn	Dormant season	Staff, Contractors
PR02	Restore prairie natural community	Remove nonnative trees, shrubs, and vines by cutting; stack and burn debris or scatter where appropriate; apply herbicide to cut stumps; consider flagging native shrubs in green to prevent accidental removal	Late Su, Fa, Wi (firm or dry ground)	Volunteers, Corps, Contractors
		Treat brush resprouts with foliar herbicide	Sp, Su (after full leaf expansion)	Contractors
		Remove other herbaceous invasive plants using best practices; targets include reed canary grass and nonnative thistle	Su	Contractors
		Collect and scatter seed sourced from within Swallow Cliff (first preference) or the Sag Valley Region (second preference); plans to introduce species not previously known to occur at the site should be discussed with the ecologist; report to the ecologist	Sp, Su, Fa	Volunteers, Corps

		the species, source, and location where distributed of any seed originating outside Swallow Cliff* Conduct prescribed burn	 Dormant season	 Staff, Contractors
FO02, FO01	Restore forest natural communities	Remove nonnative trees, shrubs, and vines by cutting; stack and burn debris or scatter where appropriate; apply herbicide to cut stumps; consider flagging native shrubs in green to prevent accidental removal; mechanical removal is critical in forested communities since fire does not carry well) Treat brush resprouts with foliar herbicide Remove herbaceous invasive plants using best practices; targets include garlic mustard and nonnative thistle (*Cirsium* spp.) Thin native trees by cutting where necessary to bolster native ground layer vegetation; stack and burn debris or leave on ground where not ecologically sensitive; plans to remove trees >12" diameter should be reviewed with the ecologist Conduct prescribed burn	Late Su, Fa, Wi (firm or dry ground) Sp, Su (after full leaf expansion) Sp, Su Wi (firm or dry ground) Dormant season	Volunteers, Corps, Contractors Corps, Contractors Volunteers, Corps, Staff Contractors, Staff Staff, Contractors
MA10, MA07, MA08, MA04, MA03, MA02, MA05	Restore marsh and sedge meadow natural communities	Remove nonnative trees, shrubs, and vines by cutting; stack and burn debris or scatter where appropriate; apply herbicide to cut stumps; consider flagging native shrubs in green to prevent accidental removal Treat brush resprouts with foliar herbicide	Late Su, Fa, Wi (firm or dry ground) Sp, Su	Contractors Contractors

		Remove herbaceous invasive plants using best practices; targets include reed canary grass and common reed (*Phragmites australis* subsp. *australis*) Conduct prescribed burn	Sp, Su, Fa Dormant season	Contractors Staff, Contractors
Unmanaged units: PR01, UW01, SA01, and associated wetlands	Reduce density of invasive brush	Conduct prescribed burn where possible in units that are otherwise unmanaged	Dormant season	Staff, Contractors

**Please report offsite seed to the FPCC ecologist on an annual basis to help us build our seed documentation. At a minimum provide a species list, seed source or sources, and seeding location (preferred at the management unit or as detailed as possible). Information on amount or collection date also welcome if available.*

All management schedule activities are subject to monitoring or supervision by the Forest Preserve District of Cook County. Additional invasive treatments may be appropriate; consult with the regional ecologist for approval. Notify the regional ecologist of additional invasive species, if found.

Site Steward Signature _____ Date _____

Regional Ecologist Signature _____ Date _____ Approved via email 12/20/2017

Forest Preserves of Cook County
Herbicide Guidelines

Commonly Used Herbicides & Adjuvants

Brand Name	Generic Names	Main Chemical	Notes
Roundup Pro	Razor Pro, Ranger Pro	Glyphosate	Already includes surfactant
Rodeo	Aquaneat, Glypro, Accord	Glyphosate (aquatic approved)	Use a non-ionic surfactant labeled for use over water
Garlon 3A	Tahoe 3A, Element 3A	Triclopyr	Must use surfactant. Also now aquatic approved.
Garlon 4	Tahoe 4, Element 4	Triclopyr	Mix with basal oil (Ax-it) for stump treatment, no water added. Primarily for stump treatment. Should not be used in hot temperatures.
Poast Plus	Vantage Grass	Sethoxydim	Grass specific herbicide. Does not include surfactant, mix with MSO, then water. Highly sensitive to UV light (apply on cloudy days), not aquatic approved
Transline		Clopyralid	surfactant, use .64 oz per gallon, do not use with rapid permeability soil (e.g. Sandy soils). Upland use only.
Milestone		Aminopyralid	

Target Species	Herbicide Name	% Solution	Oz. per G	Additional Information
Cut Woody Stumps or Chemical Basal Bark Treatments				
*	Garlon 4 (Triclopyr)	20%	25	Must be mixed with basal oil (Ax-it), NO WATER IS ADDED
*	Rounup Pro (Glyphosate)	20-50%		Cut-stump only (no basal bark treatment). Mix w/water. Treat as soon as possible after cutting. In cold weather may freeze.
* Target species includes but are not limited to Buckthorn, Black Cherry, Maple, Basswood, Tree of Heaven, White Poplar, Green Ash, Box Elder, Barberry, Locusts, Dogwoods, and Poison Ivy. **Must use Glyphosate on Honeysuckles**				
Foliar Application of Woody Plants*				
Buckthorns	Garlon 3A (Triclopyr)	5-10%	6.5 - 13	Garlon 3A is mixed w/ water & surfactant
Barberry	Garlon 3A (Triclopyr)	3-5%	5	
Black Locust	Transline (Clopyralid)	0.50%	0.64	
Dogwoods	Garlon 3A (Triclopyr)	5%	6.5	
Multiflora Rose	Garlon 3A (Triclopyr)	3-5%	4 - 6.5	
Oriental Bittersweet	Garlon 3A (Triclopyr)	5-10%	6.5 - 13	
Honeysuckles	Aquaneat (Glyphosate)	5-10%	6.5 - 13	
*All woody species above can also be treated with 5-10% Glyphosate(mix w/water) but this is a non-selective herbicde so great care is needed in sensitive areas				
Foliar Application of Herbaceous Species				
Bird's foot Trefoil	Milestone or Transline	0.25% -- 0.5%	0.32 0.64	
Burdock	Garlon 3A or Rodeo	2.50%	3	
Bull Thistle	Milestone or Transline	0.25% -- 0.5%	0.32 0.64	
Canada Thistle	Milestone or Transline	0.25% -- 0.5%	0.32 0.64	
Cattails	Rodeo	3%	4	
Crown Vetch	Milestone or Transline	0.25% -- 0.5%	0.32 0.64	
Day Lily	Rodeo	2-3%	3 to 4	Gyphosate only
Garlic Mustard	Garlon 3A	3%	3	Can be sprayed in areas without sensitive vegetation or hand pull & bag
Lesser Celandine	Rodeo	4%	5.12	Mix w/non-ionic surfactant. Up to 50% flowering
Lily of the Valley	Rodeo	2-3%	3 to 4	Glyphosate only
Leafy Spurge	Rodeo	10%	13	Difficult to kill. Contact Resource Management if found
Wild Parsnip	Garlon 3A	3%	4	
Phragmites	Rodeo	3%	4	
Purple Loosestrife	Rodeo or Garlon 3A	3%	4	
Reed Canary Grass	Rodeo	3%	4	
Reed Canary Grass	Poast Plus w/MSO (don't apply in standing water)	2%	3	1st mix with oil (MSO) then add water. Best when grass is <8" tall
Spotted Knapweed	Milestone or Transline	0.50%	0.64	
Sweet Clover	Not applicable			Hand pull & bag
Teasels	Milestone or Transline	0.25% -- 0.5%	0.32 0.64	Apply @ flowering, bolting or rosette stage
	Rodeo	2.50%	3	Apply only rosette stage or use Transline
Yellow Iris	Rodeo	5%	6.5	Use surfactant

updated Nov 2016


Swallow Cliff - Natural Communities
CALUMET SAG RD
104TH AVE
96TH AVE
McCARTHY RD
TRAIL
PR01
PR02
FO01
FO02
UW01
WO01
WO02
WO03
MA01
MA02
MA03
MA04
MA05
MA06
MA07
MA08
MA09
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MA11
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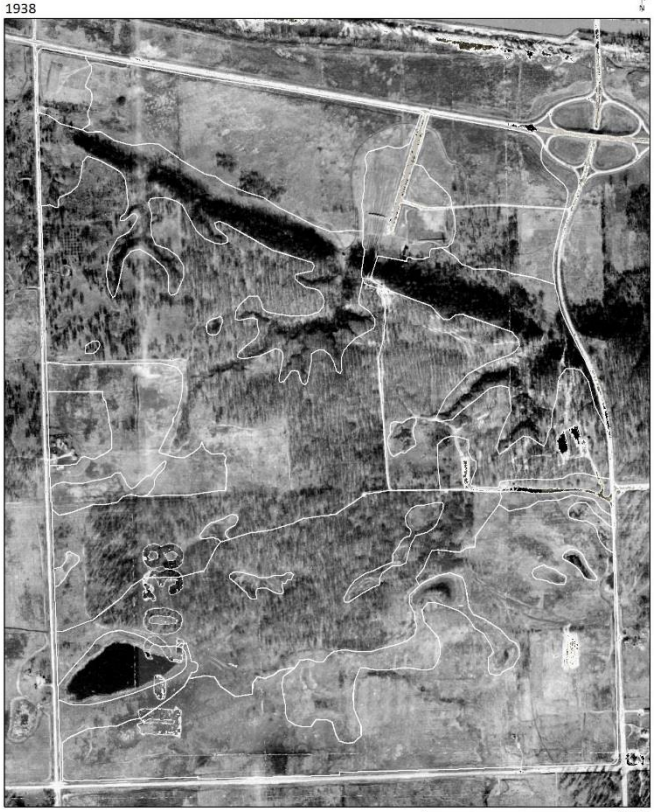
MA13
SA01
0
150
300
450
600
Yards

1938



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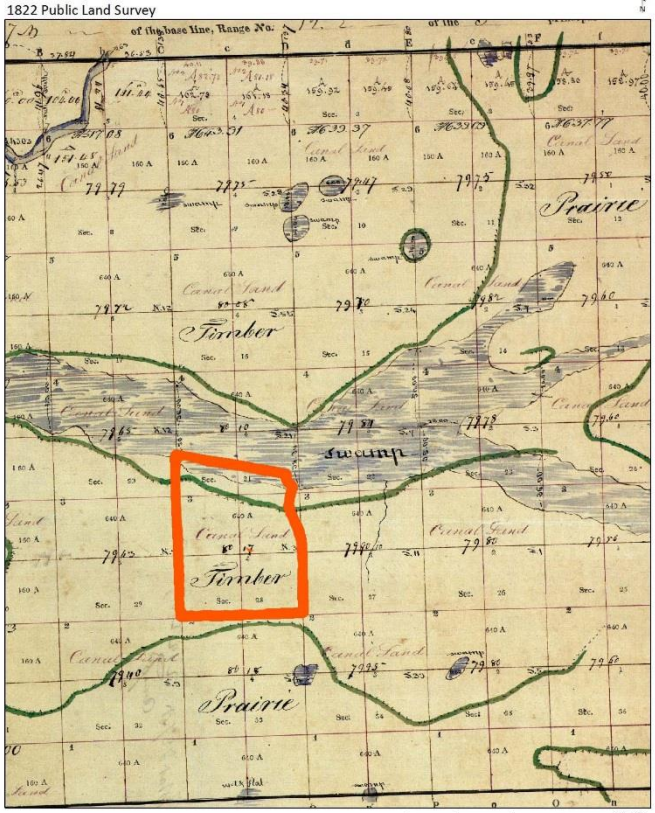
1822 Public Land Survey



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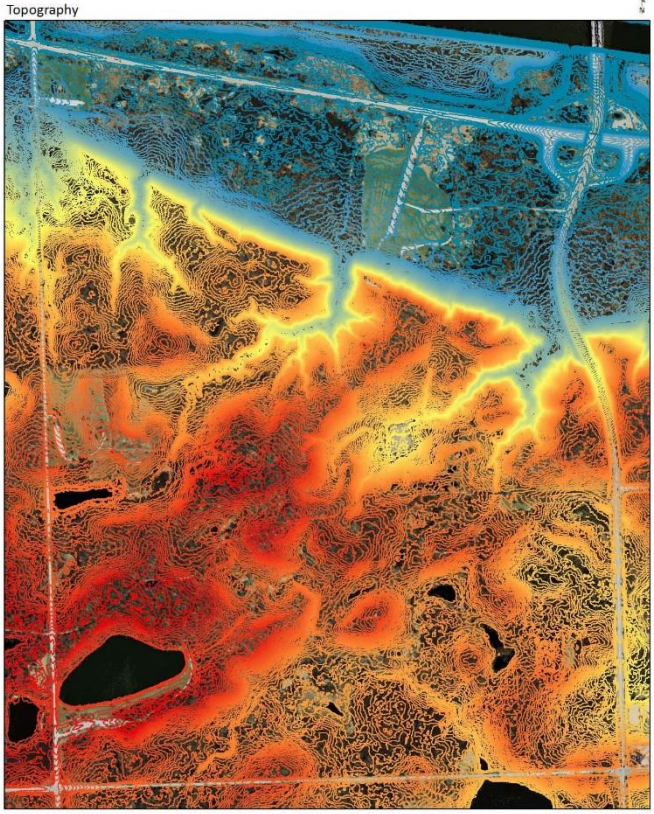
Topography



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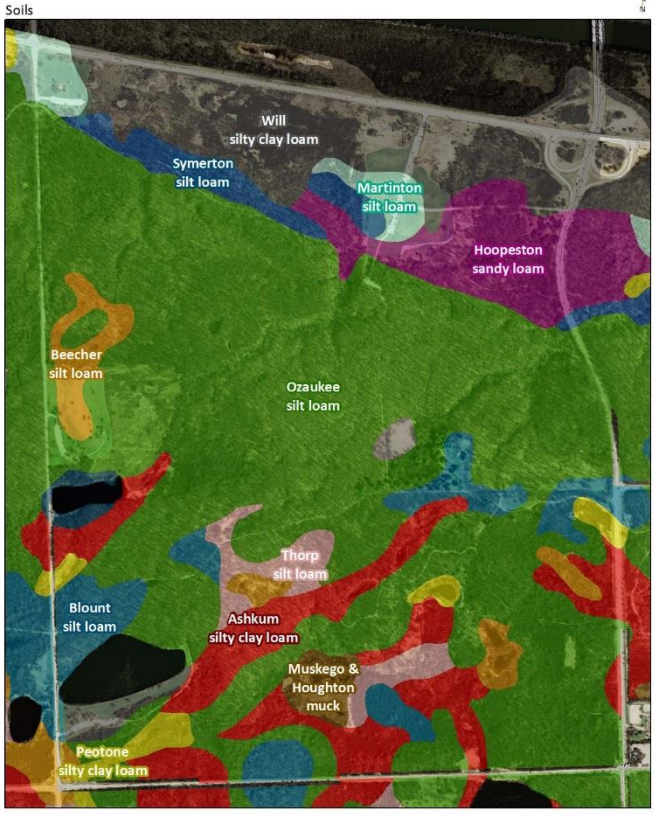
Soils



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