

Nowak Natural Area Site Management Guidelines

March, 2006



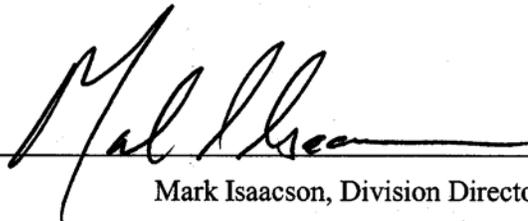
King County

Department of Natural Resources and Parks

Water and Land Resources Division

Nowak Natural Area Site Management Guidelines

March, 2006



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King County Water and Land Resources Division



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Executive Summary

Nowak Natural Area is a King County Department of Natural Resources and Parks (DNRP) Ecological Land. The site is located approximately one mile southeast of the community of Preston and just south of Interstate 90 in unincorporated King County. The undeveloped site borders the Raging River over a discontinuous quarter mile stretch from RM 5 to RM 5.3 and lies within the Raging River's 100-year floodplain. The site is adjacent to a combination of private lands and Washington State Department of Natural Resources public lands.

Nowak Natural Area is divided into two distinct sections with a single, small northern parcel (.68 acres) on the left-bank of the Raging River and a larger southern parcel (7.47 acres) which is bisected in several places by the Raging River. Within the reach in close proximity to the Nowak Natural Area, the Raging River has a relatively flat gradient with gravel interspersed with smaller amounts of boulder material. A pronounced and active side channel flows through the lower southern portion of the site where an avulsion has occurred. The entire stretch of river that flows through the Nowak Natural Area is within a channel migration zone (CMZ) and considered to be a severe channel migration hazard.

A majority of the Nowak Natural Area is forested with mature deciduous trees and shrubs, with a smaller amount of coniferous species. The Raging River corridor at the Nowak Natural Area is identified as a wildlife habitat corridor in the King County Comprehensive Plan (2004) and offers significant habitat for a variety of mammalian wildlife. The river also provides prime habitat for a variety of salmonids.

Public use of the Nowak Natural Area is minimal - no formal trails exist on the site and access is limited.

Management recommendations for the Nowak Natural Area are focused on preserving and protecting the site from damage caused by public use. While restoration projects may be proposed in the future, there is no immediate need. Rather, conservation efforts should be focused on acquiring additional properties in the vicinity of Nowak Natural Area in an effort to further protect this sensitive reach of the Raging River.

Nowak Natural Area Site Management Guidelines

Introduction

Nowak Natural Area is a King County Department of Natural Resources and Parks (DNRP) Ecological Land. Ecological Lands are a category of Water and Land Resources Division (WLRD) properties managed for the protection of their ecological value. Appropriate public access and educational opportunities are accommodated on these sites where they do not harm the ecological value of the site.

This document provides general property and acquisition information, a description of existing site conditions, a site analysis and a list of management objectives and recommendations for Nowak Natural Area. These site management guidelines were developed using guidance established in the King County Ecological Lands Handbook (2003).

Part 1. General Property Information

Nowak Natural Area is located approximately one mile southeast of the community of Preston and just south of Interstate 90 in unincorporated King County. The undeveloped site borders the Raging River over a discontinuous quarter mile stretch from RM 5 to RM 5.3 and lies within the Raging River's 100-year floodplain (King County Department of Parks, Planning and Resources, 1990). Nowak Natural Area is adjacent to a combination of private lands and Washington State Department of Natural Resources public lands.

Nowak Natural Area is divided into two distinct sections with a single, small northern parcel (.68 acres) on the left-bank of the Raging River and a larger southern parcel (7.47 acres) which is bisected in several places by the Raging River. The northern parcel is a thin strip that stretches from the Raging River up steep forested riparian slopes. The southern parcel extends to encompass 0.2 mile along the left bank of the Raging River and a small side channel on the right-bank between the Raging River and SE Upper Preston Road. The parcel contains steep forested slopes and relatively flat riparian forest.

The Nowak Natural Area has two zoning designations. The sections on the right-bank of the Raging River are zoned RA-2.5 in accordance with the 2004 King County Comprehensive Plan. The zoning designation refers to rural land use areas where the predominant lot pattern is below 5 acres in size due to lots established prior to adoption of the 1994 Comprehensive Plan. The purpose of the rural zone (RA) designation is to provide for area-wide long-term rural character and to minimize land use conflicts with nearby agricultural and forest production districts or mineral extraction sites. The sections on the left bank are zoned F in accordance with the 2000 King County Comprehensive Plan. The purpose of the forest zone (F) designation is to preserve the forest land base; conserve and protect long term productivity of forest lands; and restrict uses unrelated to or incompatible with forestry. Approximately 8% of the Nowak Natural Area lies within the Forest Production District (FPD).

Land use in the upper Raging River Basin is primarily open space or timber production. The Tiger Mountain State Forest (managed by Washington State Department of Natural Resources) and the Rattlesnake Mountain Scenic Area (managed jointly by Washington State Department of Natural Resources and King County Department of Natural Resources and Parks) are public open space. Lands dedicated to timber production are owned primarily by the Washington State Department of Natural Resources and private timber companies. A majority of the Raging River Basin has been intensively logged since the turn of the 20th century with little or no old growth forest remaining. As King County continues to grow, expanding development is possible in the Raging River Basin.

The land in the lower Raging River Basin is more developed where the river flows through the towns of Preston and Fall City to its confluence with the Snoqualmie River. These communities have historically supported rural land use activities such as agriculture, but urban and suburban land uses are increasing along with the population.

Table 1. Nowak Natural Area General Information.

Best Available Address	SE Upper Preston Road and 315 th Ave SE, Issaquah
Thomas Guide Map Location	Page 629
Legal Description	Section 4, Township 23 N, Range 7 E
Acreage	8.15 acres
Drainage Basin	Raging River
WRIA	7
Council District	3 and 9
King County Sensitive Areas	100-year floodplain, erosion, landslide and seismic hazards

Table 2. Nowak Natural Area Parcel Information.

Parcel Number	Acreage*	Recording Number	Purchase Date	Ownership type/price	Previous Names	Zoning	Funding Source
0423079002	7.47	8712220918	12/11/1987	Owned in Fee Donation	Nowak	RA-2.5, FPD	Donation
3324079058	.68	20021230003438	12/27/2002	Owned in Fee Donation	Marshall	RA-2.5	Donation

*Acreage from King County Assessor's data.

Part 2. Acquisition, Funding Source and Deed Restrictions

The Nowak Natural Area is comprised of two parcels that were donated to King County by their previous owners.

- The original parcel (“Nowak”) was donated in December of 1987. The details of the donation and the circumstances surrounding it are unavailable but, according to the Statutory Warranty Deed, King County “agrees to retain the property for park purposes for a minimum of 10 (ten) years.”

The only other restrictions are conveyed in “exhibit B” dated December 1983, which states the property is “subject to relinquishment” for the purposes of: an oil and gas lease; the shifting and changing nature of the Raging River; the navigable bed of the Raging River; and in relation to flood control activities with the flood basin.

- The next addition (“Marshall”) was donated in December 2002. King County did not originally solicit the acquisition but was approached about the donation by the grantors. Subsequently, the land purchase was recorded as an ESA acquisition due to its strategic location on the Raging River. King County Department of Natural Resources and Parks accepted the parcel for habitat preservation purposes.

The statutory warranty deed does not specify any new restrictions except those previously affecting title. These restrictions include:

- reservation of mineral rights by George Merz, his heirs, successor or assigns
- condemnation of a portion of the property for a limited access highway (presumably the construction of Upper Preston Rd SE)
- easement for a road that crosses the westerly 15 feet of the property
- agreement pertaining to paying for the costs of maintaining the road that serves the property and surrounding parcels

- rights of the state and public to use of the Raging River and to ownership of the river bed and banks in the case of channel migration.

Part 3. Ecological Resources

This section describes the natural resources and ecological processes present at Nowak Natural Area. This section describes existing conditions; further analysis will be provided in Part 6 below.

Topography and Soils

Nowak Natural Area contains steep slopes on its southwestern edge and predominantly flat sections where the site is within the floodplain of the Raging River. The maximum elevation is approximately 525 feet above sea level and the minimum is approximately 440 feet above sea level.

The soil survey, King County Area, Washington maps soils within the property boundaries as Pilchuck loamy fine sand, riverwash and Alderwood and Kitsap soils (Snyder et al., 1973). Pilchuck loamy fine sand is made up of drained soils formed in alluvium, on low stream terraces and under cover of conifers and hardwoods. Riverwash consists of areas of sand, gravel and stones along channels of larger streams with frequent erosion and deposition. Alderwood and Kitsap soils are part sandy loam and part silt loam on predominantly steep slopes where erosion hazards are commonplace (Snyder et al., 1973).

The site is recognized as a seismic, landslide and erosion hazard according to the King County Sensitive Area Ordinance, King County Code Chapter 21.54 (King County Department of Park, Planning and Resources, 1990).

Hydrology and River Morphology within the Raging River Reach

The Raging River originates on the southwest slope of Rattlesnake Mountain, two miles southwest of the city of North Bend. The Raging River drainage consists of 15.2 miles of mainstem plus 23 tributaries totaling an additional 47.2 stream miles (Williams et al, 1975). The Raging River is part of the Snohomish River Basin (Water Resource Inventory Area [WRIA] 7). Approximately 70% of the Raging River drainage lies within the FPD. Although much of the system is forested, intensive logging in the upper Raging River basin has contributed to the degradation of the soils, hydrologic regimes and riparian vegetation.

The upper Raging River tributaries start at about 3000-feet above sea-level and descend through deep ravines to about 900-foot elevation at RM 9.5 where the gradient flattens and the stream broadens portraying typical lowland characteristics (Williams et al, 1975). Lake Creek and Deep Creek are key tributaries in the upper watershed.

In the lower Raging River Basin, from RM 8 to its confluence with the Snoqualmie River, the gradient drops to about 75-feet per mile (Williams et al, 1975). Good pool-riffle reaches are interspersed with rubble and boulder. Between RM 5 and RM 7 good gravel is found on the relatively flat gradient, while downstream of RM 2 there is a prevalence of patch gravel among large boulders (Williams et al, 1975). In the lower two miles of the Raging River in the vicinity of Fall City, a system of levees and revetments has altered the dynamic flooding processes. Gauge readings near Fall City average 146 cfs with summer flows ranging from 6 to 15 cfs (Williams et al, 1975). Annual high flows average 711 cfs with the highest flow on record being 6,220 cfs in 1990. The Raging River is a major contributor of coarse sediment to the Snoqualmie River.

Within the reach in close proximity to the Nowak Natural Area, the Raging River has a relatively flat gradient with gravel interspersed with smaller amounts of boulder material. The walls of the river channel are relatively steep, confining the river. Stream width is approximately 30 – 40 feet in the reach. However, the river becomes twice as wide during flood runoff periods (Williams et al, 1975). A

pronounced and active side channel flows through the lower southern portion of the site where an avulsion has occurred.

The entire stretch of river that flows through the Nowak NA is within a channel migration zone (CMZ) and considered to be a severe channel migration hazard.¹ The large section of the Nowak Natural Area on the right bank of the river is completely within the CMZ. Due to the sensitive nature of the river channel, the King County Flood Hazard Reduction Services Program (FHRS) has orchestrated two flood buy-outs in the vicinity of Nowak NA in an effort to prevent damage due to flooding. One property was purchased from DuMond in 1991 (PIN 0423079046) and the other was purchased from MacKenzie in 1999 (PIN 0423079037) (Figure 2). There are also five flood protection facilities constructed by FHRS in the vicinity. These include the Georgeff facility upstream of the site; the Waring, Hirsch, and Jelstrup facilities between the northern and southern sections of the site; and the Hess facility downstream of the site.

Wetlands

The Nowak Natural Area contains no identified wetlands according to the King County Wetlands Inventory (King County Department of Parks, Planning and Resources, 1990) and the US Fish and Wildlife Service's National Wetland Inventory. However, depressional features in the riparian forest component likely hold water during high run-off periods.

Vegetation

A majority of the Nowak Natural Area is forested with mature deciduous trees and shrubs, with a lesser degree of coniferous species. Black cottonwood (*Populus trichocarpa*), red alder (*Alnus rubra*) and big-leaf maple (*Acer Macrophyllum*) dominate the riparian forest areas. Most of the deciduous species appear to be between 30 – 50 years old. The coniferous forest component is made up of young, interspersed western hemlock (*Tsuga heterophylla*) and western red cedar (*Thuja plicata*). Several very large Sitka spruce (*Picea sitchensis*) and western red cedar are also present on the site and appear to be over 100 years old. Vine maple (*Acer circintum*), willow (*Salix spp.*) and big-leaf maple saplings also occur on the site.

The plants in the understory shrub layer include salmonberry (*Rubus spectabilis*), snowberry (*Symphoricarpos alba*) and red-osier dogwood (*Cornus stolonifera*). Plenty of sword fern (*Polystichum munitum*) is found in the ground cover layer.

Non-native plant species are prevalent on much of the site, especially along the edge of the side channel. Many of these species are on the King County Noxious Weed List (2002) and their control is strongly encouraged. A massive infestation of Japanese knotweed (*Polygonum cuspidatum*) is present on the southern portion of the site, essentially taking over much of the side channel near the inlet. Himalayan blackberry (*Rubus discolor*) and reed canary grass (*Phalaris arundinacea*) also occur on the site.

Fish and Wildlife

The Snohomish River system sustains two genetically distinct runs of chinook salmon (*Oncorhynchus tshawytscha*); the fall run uses the Snoqualmie River system (Washington State Department of Fisheries, 1993). The Snohomish River fall chinook salmon are listed as threatened under the federal Endangered Species Act (ESA) and are part of the larger Puget Sound chinook salmon evolutionary significant unit (Washington State Department of Fisheries, 1993). The Snoqualmie River and its tributaries contain the

¹ King County has studied and mapped Channel Migration Zones (CMZs) along four of its major rivers. The County looked at historic channel locations, geology, basin hydrology, riverbank materials, current channel conditions, abandoned channels and potential avulsion sites, channel migration rates, and existing infrastructure to characterize CMZs. (King County 2003 Channel Migration Hazard web page. Available at: <http://dnr.metrokc.gov/wlr/flood/migration.html>. Last updated October 2003.)

largest amount of remaining high quality salmonid habitat in King County. Chinook adults generally start to enter the Snoqualmie River system in August and spawn from the second half of August through October. The Washington State Salmon and Steelhead Stock Assessment (1993) describes the stock as native with wild production.

In the Raging River, chinook salmon migrate, spawn and rear in the lower reach, typically below RM 7 (Williams et al, 1975). Although there is suitable habitat accessible to chinook salmon above this point, it is estimated that 85% of the chinook spawn in the lower river downstream of the town of Preston (Williams et al, 1975). The most concentrated spawning appears to be in the first 0.5 mile below the Preston Bridge where scattered patch gravel sections are present (Williams et al, 1975). The Raging River also supports wild populations of coho, pink and chum salmon as well as steelhead and cutthroat trout. These species utilize the entire accessible reach and the tributaries such as Lake Creek and Deep Creek.

The Snohomish River Basin Salmonid Habitat Conditions Review (2002) evaluated the Raging River from the headwaters to the mainstem of the Snoqualmie, which encompasses the Nowak Natural Area reach. The review indicates that habitat conditions are degraded due to in-stream artificial barriers (i.e. culverts that restrict fish access), lack of shoreline vegetation/large woody debris and an altered sediment regime. Data gaps exist for hydrologic and water quality habitat conditions. However, the presence of a sizable side channel, good gravel and intact riparian forest along the Nowak Natural Area reach provide excellent salmon habitat in this reach.

The Raging River corridor at the Nowak Natural Area is identified as a wildlife habitat corridor in the King County Comprehensive Plan (2004). The Raging River offers significant habitat for a variety of mammalian wildlife. Deer, black bear, coyote, cougar, and bobcat use the site. Raccoons, beaver and muskrat are believed to exist along the river's edge. The site also provides habitat for a variety of birds including raptors, waterfowl and great blue herons. Amphibians and reptiles likely also exist on site.

Part 4. Site Use and Infrastructure

This section describes public use, access points, and site infrastructure such as trails and roads at Nowak Natural Area.

Public Use

Public use of the Nowak Natural Area is minimal since it was previously private land and therefore has no history of public use. In addition, the site's lack of access and general undeveloped character discourages use. No formal trails exist on the site. However, as people become aware that the site is public, it is possible that recreational use will increase marginally.

Some informal uses such as fishing and nature observation may occur in the Nowak Natural Area. The small northern parcel has a history of vehicular access and partying associated with the past landowners. Illegal squatting on the property has also occurred in the past, but this does not appear to have been common.

Access

Currently there is limited access to the southern portion of the Nowak Natural Area from SE Upper Preston Road, but this requires walking down a steep embankment and through overgrown brush. No public vehicular access is available. Parking for maintenance or inspections of the site is only feasible on the shoulder of SE Upper Preston Road. However, the parking can be a safety hazard due to the road's curvy nature, narrow shoulder and short sight distances.

Access to the natural area's northern portion is limited because the site is accessible only from a private road. However, a former driveway exists from which the public can and does access the property.

Trails and Roads

There are no formal or informal public trails or roads on Nowak Natural Area.

King County Stewardship

The Nowak Natural Area's ongoing maintenance and stewardship is provided by the Parks Resource Coordinators and documented in the annual Site Maintenance Plan (SMP). The SMPs document on-site tasks that are to be completed annually for the stewardship and restoration of King County sites. In the last several years, the on-site work identified in the SMP's for the Nowak Natural Area has focused on occasional litter/garbage pickup and park inspections.

Part 5. Analysis

This section is intended to integrate site-specific information, public access considerations, and the larger landscape considerations described in the conservation principles section of the King County Ecological Lands Handbook (2003). This section presents the analysis from which site management recommendations will be made.

Species of Concern

Due to the lack of a comprehensive biological inventory at the Nowak Natural Area, the species identified in this document very likely do not account for all the species that use the site for one or more stages of their life cycles.

Documented evidence of chinook salmon, a species listed as threatened under the federal ESA, makes habitat preservation and enhancement the central priorities at the Nowak Natural Area. Activities that have the potential to harm these species should be undertaken cautiously, if at all. Habitat for chinook should be protected and enhanced where necessary and appropriate. Due to its intact forested riparian habitat, side channel features and river gravel, the Nowak Natural Area reach contributes significantly to the protection of chinook salmon.

Since chinook protection is of critical importance, long-term sustainable management actions must address foremost ecological processes and structure on the site.

Information Gaps

In the absence of complete site information, actions intended to restore parts of the systems present at the Nowak Natural Area may inadvertently harm rare or critical species and habitats, or negatively affect the ecological processes on site. To avoid this, it would be beneficial to complete a biological inventory designed to gain a more thorough understanding of the species that use the area. This information can be used when evaluating the full spectrum of ecological impacts from natural disturbances, proposed habitat restoration, public use activities and management recommendations.

Ecological Processes

Ecological processes must be maintained for ecosystems and habitats to be sustained. Current conservation theory suggests that where ecological processes are intact, systems are likely to recover – or be recovered – more easily from disturbances or inappropriate actions if the actions themselves are not permanent. Conversely, the more interference there has been with the basic ecological processes the greater the severity and longevity of effects (King County, 2003). If systems are not functioning properly management activities should focus on system-wide processes instead of the affected elements. Ultimately, management actions that do not consider the processes are less sustainable.

Bearing this concept in mind, management interventions should strive to maintain and restore basic ecological processes. To some degree the presence of Upper Preston Road, residential structures in the

Nowak Natural Area reach, and timber production in the upper watershed have altered the site's ecological processes. However, a current assessment indicates that the natural processes, including movement of water, sediment, nutrients and energy are relatively intact. The Raging River, although restrained in places, is generally free flowing in the reach, allowing natural processes such as meandering and flooding to occur. Meandering, a natural response to sediment deposition, allows for habitat complexity and the recruitment of large woody debris, both critical to creating habitat features (log-jams, pools and side channels) necessary for healthy salmon habitat. Flooding carries nutrient-rich silt and seeds of plants onto the floodplain for the natural regeneration of riparian forests.

The presence of the Upper Preston Road and residential structures does limit future opportunities to enhance ecological processes on-site. While the Nowak Natural Area reach is relatively intact, future development in the Raging River Basin may significantly alter future hydrologic and ecological processes. With that in mind, any attempts to reconnect the river with its floodplain would need the support of the adjacent landowners as well as the cooperation of government agencies.

As residential development in the Raging River Basin continues, there will be increased demand for flood control strategies such as levees and bank hardening. These strategies, while beneficial for protecting property and roads, can be detrimental to the floodplain processes. To be sure that the ecological processes within the Nowak Natural Area reach remain intact or improve, residential development should be minimized or eliminated in the floodplain area. Moreover, residences that are susceptible to bank erosion and flooding should be relocated.

Nowak Natural Area at this point has no immediate need for enhancement or restoration projects to improve the ecological processes on-site. The management of the site should be geared toward allowing natural processes to occur unencumbered. Monitoring of ecological processes should occur on a regular basis to ensure existing processes remain intact and functioning.

In the future King County should plan to protect land where appropriate within the Raging River Basin and in close proximity to the Nowak Natural Area through conservation easements and/or acquisition. Such actions will further preserve the ecological processes.

Ecological Structure and Function

Conservation principles suggest that by addressing ecological processes on site, structure and function will follow. However, since ecological processes are relatively intact and opportunities for enhancing them limited at the Nowak Natural Area, the next level of intervention should be ecological structure and function. An ecologically diverse and functioning Nowak Natural Area provides numerous ecological benefits such as preventing erosion, shading the floodplain, adding large woody debris to the floodplain, creating a canopy and contributing to biological diversity.

Nowak Natural Area offers opportunities for enhancing the floodplain structure and function through native tree and shrub plantings as well as control of noxious, invasive and non-native plant species. To date, no enhancement project has been proposed or implemented at the Nowak Natural Area. Any enhancement project should attempt to mimic natural succession and include plantings that represent a mixture of coniferous and deciduous species as well as shrub species, commonly associated with riparian areas in western Washington. Attempts to control noxious, invasive and non-native plant species also should be a vital feature of any enhancement project. Inherent in the restoration effort are attempts to maintain structural complexity, plant diversity and multiple canopy layers in order to provide a variety of vegetative and physical features that would result in a number of niches for wildlife.

Although these enhancement opportunities exist, they should not be a high priority because the structure and function of Nowak Natural Area will be enhanced naturally over time. A concerted effort to address noxious, invasive and non-native weeds on-site should be made on a basin-wide scale. Management of the site should be geared toward maintaining the structure and function and allowing natural succession to occur.

Monitoring

There are two types of monitoring: 1) monitoring of management actions to determine if they are succeeding in their objective; and 2) monitoring the processes on lands where no management action is taking place to determine if the management action is needed (King County, 2003). Since natural and social systems are uncertain, dynamic and in a constant state of flux, monitoring information is used to adaptively manage the site.

While a long-term monitoring regime of the Nowak Natural Area would provide an early warning of ecological change on the site, it is not advisable at this time due to the intensive resources required. If future projects are initiated to enhance the ecological processes on site or if public use or development increases substantially, an appropriate monitoring framework should be administered. However, King County Department of Natural Resources and Parks staff should monitor public use and noticeable ecological impacts as much as possible during site visits. Photographic evidence should be kept in order to record short and long-term changes.

Public Use

Aquatic and riparian habitats are especially vulnerable to recreational activities (Washington State Department of Fish and Wildlife, 1997). Currently, public use at the Nowak Natural Area is minimal due to its lack of access, undeveloped character and lack of history as a public land. No formal or informal trails exist on site, although its location on the Raging River makes possible public uses such as fishing and nature observation. The current public use of the Nowak Natural Area is minimal and has no adverse effects on the ecological resources.

Regardless of the amount of public use on site, recreational use should be focused away from rare and sensitive portions of the site. These riparian areas lack the capability to resist changes in environmental conditions and/or lack the resilience to recover from change. There appears to be no reason to install visitor infrastructure such as trails or improved access at the Nowak Natural Area. Monitoring changes in public visitation, types of use and impacts on the ecological systems will alert managers to needed management adjustments.

No revenue generating opportunities exist at the Nowak Natural Area.

Part 6. Management Goals, Objectives, and Recommendations

The objectives and recommendations in this section are derived from the analyses in the previous section. Office of Rural and Resource Programs staff will revise the recommendations for Nowak Natural Area when new information from site monitoring and other initiatives indicates a need for a change in management strategies.

Goals for Nowak Natural Area

The King County Department of Natural Resources and Parks staff will strive to

- conserve and restore ecological value, and
- accommodate appropriate public use that does not harm the ecological resources on site.

The objectives and recommendations that follow are designed to support these goals when practicable at the Nowak Natural Area. The corresponding matrix (Table 3) designates the King County Department of Natural Resources and Parks staff involved in implementing the specific recommendations.

Objective: Fill data gaps

➤ *Recommendation: Complete comprehensive biological inventory*

The absence of complete information limits the scope and accuracy of management decisions. Department of Natural Resources and Parks staff should complete a comprehensive and thorough biological inventory to provide the essential baseline information.

Objective: Protect and enhance natural floodplain conditions

➤ *Recommendation: Monitor for enhancement and restoration opportunities*

King County Department of Natural Resources and Parks should continue to manage the Nowak Natural Area to protect and enhance its ecological resources and specifically floodplain conditions. While there is no immediate need to initiate enhancement or restoration projects, King County staff should monitor regularly for opportunities to enhance the site's ecological processes, structure and function. Specifically, staff should address the infestation of noxious, invasive and non-native species, in particular Japanese knotweed, if basin-wide control strategies are implemented.

➤ *Recommendation: Acquire adjacent lands*

King County Department of Natural Resources and Parks staff should plan to expand the Nowak Natural Area through conservation easements and /or the acquisition of adjacent lands. Additional property would protect and enhance the site's ecological processes, structure and function, establish greater habitat connectivity and potentially increase the public use potential of this important reach of the Raging River. This work should be done in collaboration with FHRS, as FHRS has expressed interest in buying out certain properties, in particular the Alpine Mobile Home Park, which is just downstream of Nowak NA.

Objective: Allow levels of public use that do not impact ecological resources

➤ *Recommendation: Implement preserve and protect measures*

Limited low-impact public use is compatible with the site goals provided that the ecological resources are not impacted, access is feasible and parking is adequate. King County Parks staff should recommend, install, and maintain any necessary improvements to protect the site from inappropriate public uses.

Currently, improvements are unnecessary because public use is minimal, no formal trails exist on site and no access is available.

➤ *Recommendation: Monitor public use*

King County Parks staff should note and record changes in visitor numbers and types of public use activities at the Nowak Natural Area. Noticeable impacts from visitors (or illegal squatters) on the ecological or public use values of the site should be recorded and addressed. This information should be reported annually to the Natural Resource Lands Programs for updating and adapting site management guidelines.

Objective: Implement Site Management Guideline recommendations

➤ Recommendation: Site Maintenance Plan creation

King County Park staff should prepare a site maintenance plan for Nowak Natural Area that incorporates these site management guideline recommendations. King County Natural Resource Lands staff and the Snoqualmie River Basin Stewards should collaborate on this effort.

➤ Recommendation: Coordinate implementation of Site Management Guideline recommendations

King County Natural Resource Lands staff should monitor the recommendations in the site management guidelines and coordinate with the various programs responsible for implementing these recommendations to facilitate their timely accomplishment.

King County Natural Resource Lands staff should coordinate with the Snoqualmie River Basin Steward and King County Parks staff to revise the site management guidelines as needed.

Table 3. Matrix of Nowak Natural Area Management Recommendations

Recommendations	Cost	Year	Parks Resource Staff	Basin Steward	WRIA Project Coord.	CPOSA/ Contract	WEAT	FHRP	NRL staff
Priority One									
Implement preserve and protect measures		On-going	X						X
Monitor public use		On-going	X						
Site maintenance plan creation		Annual	X	X					X
Priority Two									
Monitor for enhancement and restoration opportunities		On-going	X	X					X
Complete comprehensive biological inventory		2004-2006	X	X		X	X		
Coordinate implementation of site management guideline recommendations		2004 - 2006	X	X					X

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