DISHMAN HILLS
NATURAL RESOURCES
CONSERVATION AREA
MANAGEMENT PLAN

August 1995
Acknowledgements

Dishman Hills NRCA Advisory Committee

Jim Newton, Committee Chair, Department of Natural Resources
Wyn Birkenhal, Spokane County Parks and Recreation
Mr. & Mrs. Jim Gibbard, Local Residents
Morey Haggin, Spokane Audubon Society
Wayne Hollenbeck, Back Country Horsemen Association
Fayette Krause, The Nature Conservancy
David Moffitt, Inland Empire Mountain Bike Association
Tom Rogers, Local Resident, Dishman Hills Natural Area Association
Michael Hamilton, Dishman Hills Natural Area Association
Mark Wynne, Spokane Indian Tribe

Department of Natural Resources

Jennifer Belcher, Commissioner of Public Lands
Kaleen Cottingham, Supervisor
Stan Biles, Deputy Supervisor

Forest Resources Division
Jack Hulse, Division Manager
Bob Coon, Assistant Manager
Richard Ramsey, Section Manager
Marsha Hixson, Environmental Specialist
Leslie Durham, Environmental Specialist
Gina Wendler, Publication Support

Northeast Region
Wes Culp, Region Manager
Dick Dunton, Assistant Region Manager
Jim Newton, Arcadia District Manager
Ken McNamee, Forester

Communications Product Development
Blanche Sobottke, Editor
July 17, 1995

Dear Friend:

This plan was developed to guide the management of the Dishman Hills Natural Resources Conservation Area (NRCA) on 500 acres in Spokane County. Completion and approval of this plan culminates a long period of cooperation among the Department of Natural Resources, the Dishman Hills Natural Area Association, Spokane County, the Dishman Hills NRCA Citizens' Advisory Committee, and the public.

Dishman Hills NRCA will be jointly managed by the Department, the Dishman Hills Natural Area Association, and Spokane County. This plan and management triad represent a unique partnership to protect this outstanding area on the outskirts of the city of Spokane.

Future generations will greatly benefit from the protection of the special resources at Dishman Hills. The significant features to be found in the Hills make this NRCA an excellent example of Washington's natural heritage, especially since it's so close to Spokane. The NRCA supports rare forest communities, pothole ponds and wetlands, a federally listed plant, and unusual butterfly populations.

I encourage you to stay involved as the Dishman Hills management plan is implemented. Join us in creating a legacy of wise management and stewardship at this extraordinary place.

Sincerely,

JENNIFER M. BELCHER
Commissioner of Public Lands

JMBmh
Contents

1 Cooperative Agreement
2 Preface
3 Introduction
  3 Program Purpose
  4 The Planning Process
  5 Dishman Hills NRCA
7 Executive Summary
  7 Management Plan
9 Management Philosophy
11 Resource Analysis
12 Monitoring and Research
  12 Research Needs
13 Stewardship
  13 Overview
  14 Stewardship Recommendations
17 Public Use
  17 Prohibited Uses
  18 Management Recommendations for Public Use
19 Environmental Education
20 Regulatory Responsibilities
  20 Fire Prevention and Management
  20 Law Enforcement
  21 Emergency Response
22 DHNRCA Expansion Recommendation
23 Glossary
25 Reference Literature

Appendices
26 History of Ownership
27 Sensitive Resources
30 Noxious or Invasive Plants
32 Monitoring and Research
33 Public Use
36 Memorandum of Understanding

Figures
6 Figure 1. Vicinity Map
8 Figure 2. Ownership Map
Cooperative Agreement

Dishman Hills Natural Resources Conservation Area
Management Plan

Pursuant to the memorandum of understanding, dated August 17, 1993, attached and incorporated by reference herein, the Washington State Department of Natural Resources, the Spokane County Parks and Recreation Department and the Dishman Hills Natural Area Association accept the Dishman Hills Natural Resources Conservation Area management plan, as drafted by the Dishman Hills Advisory Committee and dated December, 1994, and agree to work cooperatively to manage the site as described in the plan.

[Signatures]

Spokane County Commissioner  Date

Spokane County Commissioner  Date

Spokane County Commissioner  Date

President  Date
Dishman Hills Natural Area Association

Commissioner of Public Lands  Date
Preface

In 1987 the Natural Resources Conservation Areas Program was created by an act of the Washington State Legislature. The Dishman Hills site was identified as one of four new NRCA's in the state. This brought to fruition the longtime vision of many people — including the Commissioner of Public Lands, state legislators, Spokane County, the Dishman Hills Natural Area Association, residents, conservationists and recreationists.

The Dishman Hills NRCA totals more than 500 acres, jointly owned and managed by Spokane County, The Dishman Hills Natural Area Association and the DNR.

The planning process would not have been possible without the ongoing assistance of the NRCA Advisory Committee (see inside cover for acknowledgments). The committee reviewed reconnaissance studies, heard public testimony and advised the Department on the issues addressed in the plan. The DNR Natural Heritage Program (NHP) staff and others collected information and developed recommendations that were essential to this planning effort.

This plan meets the requirement set forth in the Natural Resources Conservation Act (RCW 79.71) and adheres to the policy guidelines stipulated in the Natural Resources Conservation Area Statewide Management Plan (1992).
Introduction

The Washington Natural Resources Conservation Areas (NRCA) Act directed the Department of Natural Resources (DNR) to acquire property to be designated as conservation areas. Dishman Hills was one of the four sites originally designated.

The act defines the characteristics of an NRCA as:

- Lands with a high priority for conservation, natural systems, wildlife and low-impact public use
- An area of land or water—or land and water—with flora, fauna, geological, archaeological, scenic or similar critically important features that retains to some degree or has reestablished its natural character
- Examples of native ecological communities
- Environmentally significant sites threatened by incompatible or ecologically irreversible developments

The act further defines the purposes of a conservation area as:

Maintaining, enhancing, or restoring ecological systems, including but not limited to aquatic, coastal, riparian, mountain, and geological systems, whether such systems be unique or typical to the state of Washington

- Maintaining habitat for threatened, endangered, and sensitive species
- Maintaining exceptional scenic landscapes
- Outdoor environmental education
- Enhancing sites for low impact public use

Program Purpose

The primary purpose of the NRCA program is to protect outstanding examples of native ecosystems, habitat for endangered, threatened, and sensitive plants and animals and scenic landscapes.

There will be opportunities for environmental education and low impact public uses where such uses do not adversely affect the resource values the area was intended to protect.

A fundamental principle of the NRCA program is that natural resource protection has the highest priority. All uses directly involving people and management activities will be allowed only where they will not adversely affect the quality of the site's natural resources and not disrupt long-term ecological process. Resource conservation will always prevail in conflicts with human use.
The Act also required the Department to develop management plans for each NRCA. The purpose of the Dishman Hills NRCA (Figure 1) is to protect outstanding examples of native ecosystems and habitat for endangered, threatened, and sensitive plants and animals.

The Planning Process

STATEWIDE PLAN AND CITIZEN ADVISORY COMMITTEE
The NRCA Statewide Management Plan was adopted by the Commissioner of Public Lands in 1992. It was developed with the assistance of the NRCA Statewide Advisory Committee. The committee also serves as a review group for completed site management plans and provides advice on other aspects of the NRCA program.

This plan was prepared by the Northeast Region of the Department of Natural Resources, Dishman Hills Natural Area Association, and Spokane County Parks and Recreation Department with assistance from the Dishman Hills Advisory Committee.

DISHMAN HILLS ADVISORY COMMITTEE
The Commissioner of Public Lands appointed a Citizens Advisory Committee to assist in developing the management plan. The Committee includes representatives from Spokane County Parks and Recreation Department, the Dishman Hills Natural Area Association, Backcountry Horsemen, Spokane Indian Tribe, Inland Empire Mountain Bike Association, The Nature Conservancy, Spokane Audubon Society, and neighboring property owners. Committee members provided information, comments on the plan and reviewed draft plans. Refer to the inside cover of this document for a list of Advisory Committee members.

SEPA COMPLIANCE
This plan fulfills SEPA requirements. It is consistent with SEPA policies adopted in the September 1992 Natural Resources Conservation Areas Statewide Management Plan.

The State Environmental Policy Act (SEPA), Chapter 43.21 RCW requires governmental agencies to consider the environmental impact of a proposal before making decisions. In preparing this plan, an environmental checklist and a supplement sheet for non-project action was prepared and a declaration of nonsignificance was issued on December 7, 1994. This information, along with the plan, was submitted for public comment in compliance with SEPA.

REVIEW AND ADOPTION PROCESS
A public meeting was held on this plan for the purpose of obtaining review and comments in Spokane, Washington on December 22, 1994. This plan was made available to federal, state, tribal and local agencies for review and comment.

After review and comments by the public, state, tribal, and local agencies the final draft was submitted to the Commissioner of Public Lands, Spokane County Commissioners and the Dishman Hills Natural Area Association's Board of Directors for adoption.
Following its adoption, the landowners will meet at least once a year to review this plan. The Statewide Advisory Committee will review the plan on a five-year cycle to ensure compliance with the Statewide Management Plan for NRCA. These reviews will enable the plans to be revised to address current management issues.

Dishman Hills NRCA (DHRCA)

The Dishman Hills NRCA is comprised of 518 acres held by three landowners. Spokane County owns 228 acres; the Dishman Hills Natural Area Association (DHNA), 220 acres; and The Department of Natural Resources (DNR), 70 acres (see Appendix A - History of Ownership).

The DHRCA is located about six miles east of downtown Spokane. The DHRCA encompasses portions of Sections 19, 20 and 30, all in Township 25 North, Range 44 East, W.M. (Figure 2). The north, east and west boundaries border developed residential areas and highly developed commercial areas. Part of the south boundary adjoins rural residences. The undeveloped portion of the south boundary connects second growth forest to Krell or “Tower” Mountain, two miles farther south.

The present topography is mainly a result of large floods during the Glacial Age, about 12,000 years ago. In Montana, large lakes formed behind ice lobes of continental glaciers. These ice dams weakened due to climatic warming, broke, and catastrophically drained. The floods scoured the Spokane areas up to an elevation of about 2,500 feet. The lower Dishman Hills were stripped of soil, and formed into a terrain of pothole ponds, hummocks, ridges and gullies.

Washington Natural Heritage Program, The Nature Conservancy and other naturalists recognize DHRCA as one of the most important areas of biological diversity in the state. Ponds, intermittent streams and springs are found on the site. Ponderosa pine and Douglas fir are interspersed with grasses, flowers and flowering shrubs.

The DHRCA supports several different plant communities and one of the last remaining populations of the state endangered and federally threatened Howelia aequitatis. Flowering plants, ferns, fungi, and lichens have been identified on the site. Birds, mammals, amphibians, and butterflies are also present.

DHRCA will be managed jointly by Dishman Hills Natural Area Association, Spokane County Parks and Recreation and Department of Natural Resources. The DHRCA site plan is to provide guidance to the site managers, now and in the future. The management plan is not intended to be a development or implementation plan and therefore contains guidelines in many areas rather than specifics.
Executive Summary

The primary purpose of the Natural Resources Conservation Area (NRCA) program is to protect outstanding examples of native ecosystems, habitat for endangered, threatened, and sensitive plants and animals and scenic landscapes.

A fundamental principle of the NRCA program is that natural resource protection has the highest priority. All uses directly involving people and management activities will be allowed only where they will not adversely affect the quality of the site's natural resources and not disrupt long-term ecological process. Resource conservation will always prevail in conflicts with human use.

Washington Natural Heritage Program. The Nature Conservancy and other naturalists recognize DHNRCA as one of the most important areas of biological diversity in the state. Ponds, intermittent streams and springs are found on the site. Ponderosa pine and Douglas fir are interspersed with grasses, flowers and flowering shrubs.

The DHNRCA supports several different plant communities and one of the last remaining populations of the state endangered and federally threatened *Huellia aquatilis*. Flowering plants, ferns, fungi, and lichens have been identified on the site. Birds, mammals, amphibians, and butterflies are also present.

Management Plan

The NRCA Act requires the Department of Natural Resources (DNR) to develop management plans for each NRCA. The purpose of the Dishman Hills NRCA (DHNRCA) is to protect outstanding examples of native ecosystems and habitat for endangered, threatened, and sensitive plants and animals. There will be opportunities for environmental education and low impact public uses where such uses do not adversely affect the resource values the area was intended to protect. This will be accomplished by pursuing the five program goals:

Goal One: Maintain, enhance, and restore ecological systems

Goal Two: Maintain habitat for threatened, endangered, and sensitive species

Goal Three: Maintain exceptional scenic landscapes

Goal Four: Enhance sites for outdoor environmental education

Goal Five: Enhance sites for low impact public use
Management Philosophy

The purpose of Dishman Hills NRCA is to protect outstanding examples of native ecosystems and habitat for endangered, threatened and sensitive plants and animals. There will be opportunities for environmental education and low-impact public uses where such uses do not adversely affect the resource values the area was intended to protect. This will be accomplished by pursuing the five program goals and implementation strategies listed below.

GOAL ONE: MAINTAIN, ENHANCE, AND RESTORE ECOLOGICAL SYSTEMS

Strategies:

- DHNRCA management will emphasize the protection of natural ecosystem processes and the resulting biological diversity.
- Allowing DHNRCA’s natural ecosystem processes to proceed will be the preferred approach for the restoration and maintenance of natural and target conditions.
- Restoration and resource manipulation will be employed where disturbed areas are not recuperating through natural processes and where ecosystems quality is degrading (through erosion, non-native plant invasion, etc.).
- Public use areas will be designed to have the least amount of impact.
- Use-level thresholds will be set based on impact to site quality. Where thresholds are approached, public-use levels and activities will be controlled, monitored, or eliminated.

GOAL TWO: MAINTAIN HABITAT FOR THREATENED, ENDANGERED AND SENSITIVE SPECIES

Strategies:

- Adhere to federal, state, and local laws and DHNRCA program policy. Inventory and management of endangered, threatened and sensitive species habitat will be given high priority in the management of the DHNRCA.
- Other agencies with appropriate expertise will be invited to work cooperatively in inventory and management of listed species.
- Site restoration and enhancement will encourage reestablishment and success of plants and animals that are native to DHNRCA.
- When possible acquire land to maintain integrity of species population.

GOAL THREE: MAINTAIN EXCEPTIONAL SCENIC LANDSCAPES

Strategies:

- To protect on-site aesthetic qualities, site development and facilities will be designed to retain natural appearance (i.e., through use of rustic materials and muted colors, placement of facilities outside of viewshed).
- Management activities, site development and acquisitions will be planned to minimize impact to the appearance of DHNRCA from surrounding areas and aerial locations.
GOAL FOUR: ENHANCE SITES FOR OUTDOOR ENVIRONMENTAL EDUCATION

Strategies:
- Education information (trailheads, placards, signing, brochures, staff) will be placed appropriately to foster acceptable levels and locations for public use, particularly where the public enters the DHNRCA and where use is in or near an identified sensitive area.
- Education information will inform the public of outstanding biological, geological, pre-historic and historic components of DHNRCA.
- Interpretive text will convey a conservation ethic to enhance respect and awareness for the DHNRCA's environment and its protection.
- Use restrictions and regulations will be presented within the context of environmental education.

GOAL FIVE: ENHANCE SITES FOR LOW-ImpACT PUBLIC USE

Strategies:
- Appropriate use levels are those that can be allowed without adversely affecting the other four conservation goals.
- Public use will be closely monitored. Where impacts approach thresholds, use will be controlled or prohibited, and site enhancement or restoration will be employed.
- Alternative recreational opportunities and facilities within the region will be identified and publicized to draw inappropriate activities and use-levels away from DHNRCA.
- Where allowed, public use sites will be designed to minimize and mitigate impacts.
- Any site development plan will address monitoring techniques, establish baseline data, and set threshold impact levels.
Resource Analysis

RCW 79.71 requires that each NRCA plan identify the resources to be protected. To identify sensitive resources reconnaissance efforts focused on seven areas: archaeology, history since European settlement, fire, geology, soils, water resources, vegetation and wildlife (Andelman, et al, 1992; Rogers, 1991a, 1991b, 1991c, 1991d). Further research is needed, particularly in the areas of ecology, wildlife and fire history, as outlined in the Research/Information Needs.

Based on review of the reconnaissance studies, natural resources inventory report and recommendations of experts, sensitive resources were identified and locations mapped. Staff from the Department of Natural Resources, Dishman Hills Natural Area Association, Department of Wildlife, the Office of Archaeological and Historic Preservation and Eastern Washington University provided information which resulted in establishment of sensitivity and management requirements.

DHNRCRA has rare forest communities and rare plant species that are in good ecological condition (Schuller, personal contact), only a few of which are protected anywhere in the state. Identified sensitive resources include three forest communities, pothole ponds and wetlands, a butterfly population, and two plant species with protected status (see Appendix B - Sensitive Resources).
Monitoring & Research

Research Needs

Continuing research will be necessary to answer many of the management questions. The proximity of the DHNRCA to several major universities makes it particularly well suited for studies on the biological impacts associated with various types of land management.

The activities outlined below are part of a responsible program of ecological management and protection:

- Develop a nondestructive procedure for monitoring *Howellia* population.
- Develop and implement a comprehensive long term weed control plan for the DHNRCA.
- Develop a user’s survey that includes type of activity, day of week, time of day, age/sex of users, number in group and user attitudes regarding management objectives.
- Develop a protocol for monitoring vegetation trends in selected ponderosa pine communities.
- Continue and complete the research to document the fire history of DHNRCA.
- Conduct an inventory to assess fauna and flora species abundance and density in the DHNRCA.
- Develop a research program, using past research and experience, to assess the impact of domestic dog and cat predation on birds, amphibian, reptile and small mammal populations in the DHNRCA.
- Develop a plan for snag creation for wildlife.
- Update and complete the inventory of the fauna and flora of Tower Mountain.

**FUNDING FOR RESEARCH**

The Advisory Committee and the landowners will identify needed research for the DHNRCA. Research projects will be cooperatively addressed and designed by the landowners. Funding for research will be pursued through whatever channels are available to each landowner.

**SCIENTIFIC USE**

The DHNRCA is open to scientific study upon approval of written proposal. Proposals can be submitted to any one of the three landowners. Review and approval of the proposal by the landowners will be required before the research project can start. The proposal must state project objectives, desired location of the project, time frame, address any potential for resource damage, and outline steps to prevent or mitigate disturbance to the DHNRCA. Upon completion of any study, copies of the findings and data will be submitted to the landowners.
Stewardship

Overview

Stewardship is the term used to describe management activities that are intended to maintain, restore, or enhance ecosystems, including critical habitat.

Maintenance includes those activities intended to preserve ecosystem processes and characteristics such as: controlling and preventing invasive non-native plants; redirecting and limiting public use that is detrimental to natural site characteristics and habitat quality; retaining large standing and down wood in the DHRNCA; minimizing habitat fragmentation in the location and construction of trails.

Restoration describes those management activities aimed at re-establishing a fully functional natural ecosystem with all its components. Restoration activities may include: reintroduction of native plants and/or animals and reduction of non-native plants and animals.

Enhancement describes alterations that introduce a new and acceptable purpose to the existing ecosystem. Enhancement also describes ecosystem manipulation for native species, such as in forest stands to create canopy structure suitable for cavity nesting birds and mammals.

One goal of DHRNCA is to protect natural processes that have shaped the natural landscape features.

Natural processes that have influenced DHRNCA's environment include:

- Periodic fire of low intensity
- Windthrow in forest stands
- Decomposition of large standing and fallen dead wood (primarily by birds, invertebrates and fungi)
- Gradual transformation of wetlands, ponds and springs into drier habitats.
- The relatively free movement of wildlife among the dynamic mosaic of DHRNCA and the surrounding areas' habitats.

Throughout the history of human use at DHRNCA, these processes have been altered or interrupted for periods of time in most locations. Much of DHRNCA is in a self-restorative state, where natural regeneration of native plants, associated habitat, and soil and nutrient conservation is occurring. In some areas, human related disturbance has sufficiently degraded site characteristics so that instead of solely using natural restorative processes, management intervention may be required to achieve conservation goals.

Where site degradation is continuing, impacts will be minimized through active management.
Operational activities may be conducted throughout the DHNRCA after careful evaluation of each proposal with the program goals and stewardship strategies. Examples of operational activities include:

- Trail construction and maintenance
- Restoration of disturbed areas
- Development and maintenance of facilities
- Emergency responses, law enforcement
- Research and monitoring
- Controlled burning
- Habitat enhancement

Any plan for an enhancement project in the DHNRCA should address monitoring and impact levels.

---

**Stewardship Recommendations**

**FOREST COMMUNITIES**

**Issues**
Unauthorized use contributes to vegetation damage, soil erosion, spread of non-native plants, disruption to wildlife and the general degradation of the site's ecological values.

**Management Recommendations**

- Restore degraded areas and unwanted trails with native vegetation. The preferred approach is to allow the natural processes to proceed before applying active management techniques, as outlined in the "Management Philosophy" under goal one.
- Monitor and control non-native vegetation in the forest communities (see Appendix C - Noxious or Invasive Plants).
- After completing research on the site's fire history, investigate the need for a fire management plan for the ponderosa pine community types, including the total impact on the ecosystem (e.g., soils, vegetation, wildlife, insects, etc.).

**POTHOLE PONDS/WETLANDS/SPRINGS**

**Issues**
Recreational users are attracted to these areas for viewing the scenic and natural qualities found in terrestrial-aquatic systems. Unsupervised activities range from collecting frogs and salamanders, turning over and removing rocks, throwing debris and rocks into the ponds, and trampling vegetation and soils. The ponds are a popular destination for education purposes by local groups and schools. These activities are currently jeopardizing the natural integrity of the ponds, wetlands and springs.

**Management Recommendations**

- Limit human use of East Pond, West Pond, Lost Pond, Little Lost Pond and wetlands. Restrict access completely if necessary.
- Monitor and eradicate non-native plants and reduce shoreline erosion around the ponds and wetlands (see Appendix C - Noxious or Invasive Plant Species).
Avoid trampling of wetland soils and vegetation to minimize disturbance and introduction of non-native plants.

- Eliminate the trail that traverses through East Pond.
- Study the impacts of the rock dam in East Pond and determine the appropriate management action.
- Where approved for public use, develop trails away from the edges of ponds, wetland and springs.

CRITICAL HABITAT

Issues
Two plant species of endangered and sensitive status and three butterfly species of state monitor status have been identified on the DHNRCA. These species in the DHNRCA are threatened by even the lowest impact public use and occupy habitat that are highly prone to trampling and related human disturbances. Located in one of the state’s most rapidly developing counties, DHNRCA will provide an increasingly rare resource for species not adapted to altered habitat. Some species, especially wildlife, will probably continue to decline due to the increasing development pressures of the area.

Management Recommendations
- Work cooperatively with other agencies that provide the expertise and enforcement powers necessary to protect identified threatened, endangered, and sensitive species.
- Provide for the protection and restoration of the identified endangered, sensitive, and state monitored species.
- Protect native ecosystems from human disturbance.
- Acquire additional wildlife corridors, by purchase or conservation easement, to connect DHNRCA with Tower Mountain to help maintain viable populations of vertebrate animals.
- Create snags in selected portions of the DHNRCA for cavity nesting birds.
- Retain downed woody debris.
- Allow educational use only where the impact is proven not to interfere with wildlife or disturb sensitive vegetation.

CULTURAL RESOURCES

Issues
DHNRCA has not been surveyed for the presence of cultural resources. It is likely that the site provided important food sources to Native Americans, according to Harvey S. Rice, Director of Archaeology and Historical Services at Eastern Washington University.

Management Recommendations
- Conduct a cultural resource survey of the DHNRCA.
- If cultural resources are identified, direct public use away from these areas until resource protection had been secured and public use controlled in a manner that will not adversely impact the sites.

DHNRCA wide Management Recommendations
- Develop a full-time DNR land steward position with enforcement authority to educate, patrol and prevent further human abuse and degradation of the DHNRCA’s ecological values.
Eliminate, or drastically reduce, noxious weeds. Until a comprehensive weed control plan is developed, carry out the short-term measures outlined in Shearer's Vegetative Survey Report.

Encourage landowners adjacent to the DHNRCA to use native plants in landscaping. Promote control of invasive species on private property to prevent spread onto the NRCA.

Develop a trail plan for the site. Do not construct any new trails within the DHNRCA except where needed to protect the sensitive resources.

Eliminate off-trail use except for approved educational, research and operational purposes. Any off-trail use will need prior approval by mutual consent of the three landowners.

Motorized vehicles, bicycles and horses are prohibited because studies show these activities contribute to soil erosion, damage vegetation, widen trails, impact wildlife and introduce non-native plants.

Eliminate uses not specifically allowed in this plan.

Minimize the disturbance of plants, animals, rocks and soils through education and enforcement means.

Acquire properties when they become available for protective buffers, wildlife corridors, and to reduce public use pressures of the current DHNRCA.

Land acquisition to the south, to connect DHNRCA with Tower Mountain, will be given first priority.

Work with local government to mitigate the detrimental effects of the purposed South Valley Arterial such as additional adequate buffers or additional land purchases.

Restrict domestic dogs to leashes or prohibit them.

Eliminate vandalism, garbage dumping and littering.

Develop and provide to the public a revised map of DHNRCA.

Initiate a monitoring and research program for the DHNRCA to ensure management objectives are being met and to suggest directions for adjustment in management when needed. For more information see the Monitoring and Research section.

Monitoring plans will be developed before stewardship and site development proceed (see Appendix D - Monitoring and Research). Two types of monitoring the Department will address are:

Ecological monitoring

Public use monitoring

Baseline studies have been started for the forest communities, Howellia population and noxious weeds. Further baseline information is needed for the three state-listed monitor species of butterflies, pothole ponds and wetlands, wildlife populations, and types of human use and impacts on the DHNRCA.
Public Use

Public uses at DHNRCA shall not compromise the site's integrity, ecological, geological, scenic, historic, and archeological value. Such activities should leave vegetation, animal behavior, soil and water relatively unaltered (see Statewide Management Plan, 1992).

Any use not specifically allowed in this plan is disallowed. The following are low-impact public uses permitted at DHNRCA on trails and facilities developed by the managing landowners, subject to seasonal closures, special closures, and limits on participant numbers.

- Hiking
- Bird watching
- Environmental education
- Sightseeing (viewing from existing trails within the DHNRCA or from outside the DHNRCA)
- Photography
- Jogging
- Leashed pet companion
- Trails for the physically challenged
- Cross-country skiing
- Snowshoeing

Prohibited Uses

- Collection, removal, or damage of any living or dead organism, geological feature or part thereof, except as part of an approved research project, education project or management activity.
- Horses, bicycles, and motorized vehicles.
- Grazing by domestic livestock such as horses, cattle, and sheep.
- Surface mining and mineral exploration or extraction.
- Possession, firing or discharging of any firearm, bow and arrow, air or gas gun, or any other weapon of any kind within or into the DHNRCA. Exceptions include approved research activities and management activities.
- Trapping, hunting, and killing of wildlife species except as part of an approved research project or as required in management of the DHNRCA.
- Camping except at designated sites in Camp Caro.
- Fires of any type.
- Fireworks.
- Unauthorized signs, trail markers, flagging, ribbons, etc.
- Introduction of organisms except as part of an approved research project or management activity.
The above prohibitions should not be construed to be a complete listing of activities are that incompatible with the primary goals of the DHNRCA. Landowners and the Land Steward will evaluate additional uses for impact on vegetation, wildlife, and site compatibility.

**Management Recommendations for Public Use**

- Inform the public by signs or other means of the reason for area closures or activity restriction.
- Identify appropriate uses to the public by signs or other means.
- Monitor visitor use on a continuing basis and gauge impact of visitors upon the resource.
- When developing a trail system for public use, the managing landowners should avoid leading DHNRCA visitors to locations that would encourage trespass on private property. Adjacent landowners with the DHNRCA should not be allowed to develop their own accesses into the DHNRCA, but should be required to use designated public entry points.
- The managing landowners should network with user groups and tour guides to reduce impacts and conflicts arising from group use.
Environmental Education

Environmental education is an essential tool in building a strong partnership with the public. Information can be offered to encourage respect, protection, and a sense of stewardship towards the DHNRCA. We should encourage the public to join us in our efforts to protect the resources and provide opportunities for appropriate public uses that meet the DHNRCA conservation goals.

Visitors to the DHNRCA should be encouraged to take a proprietary interest in the site, and become willing partners in the restoration and protection of the site. Educators should be encouraged to use the DHNRCA for passive nature study and appreciation.

The lodge at Camp Caro provides an excellent facility to prepare and organize groups before starting their excursion out into the hills.

EDUCATIONAL TOPICS AT THE DHNRCA COULD INCLUDE
- Local flora and fauna, relationship in the food web, habitat requirements, use of forest, migrant and resident wildlife populations.
- Forest ecosystem history - evidence of fire, logging and animal activity, influence of soils and aspect on vegetation, regeneration after disturbance, forest succession.
- Human influence upon DHNRCA ecosystem, including Native Americans' and settlers' use of the hills, pre-NRCA program protection efforts by the DHNAA, acquisition and protection of the Natural Resource Conservation Area.
- Geology, glacial influence and evidence (pothole ponds), soil formation and influence on vegetation.
- NRCA Program Education, including regulations and the rationale behind restricted use.

RECOMMENDATIONS FOR ENVIRONMENTAL EDUCATION
- Site interpretation will be based on NRCA program guidelines for environmental education.
- Education visits must be scheduled and approved by mutual consent of the landowners.
- Educational information explaining the features of the DHNRCA, conservation goals, and use limitations will be placed in appropriate locations, particularly at trailheads and entry points.
- Interpretive text will target audiences that include young people (grades K-12).
- Unobtrusive signs and interpretive information will be placed at appropriate locations.
- Areas closed to the public will be signed and the reason for closure explained.
- Environmental education should be considered when site enhancement projects are being planned.
- School districts and other interested organizations will be encouraged to use the DHNRCA for passive nature study and appreciation.
Regulatory Responsibilities

Fire Prevention and Management

Human activity has caused most of the fires in the DHNRCA. The primary focus for fire prevention will be the prohibition of all open flames in the DHNRCA except as an operational tool which may be necessary to achieve management goals. Smoking in the DHNRCA will be discouraged.

FIRES WITHIN THE DHNRCA WILL BE EXTINGUISHED
DNR has the fire fighting responsibility on the NRCA lands. Spokane County Fire Protection Districts One and Eight have the fire fighting responsibility in the adjacent residential areas.

DNR will consider the primary goals and most sensitive resources of the DHNRCA in choosing fire suppression techniques that include location of control lines, role of heavy equipment and explosives, use of chemical retardants, type of mop-up activity, and extent of mop-up. The DNR will use necessary means to prevent fires on the DHNRCA from spreading to adjacent lands.

RECOMMENDATIONS FOR FIRE SUPPRESSION EFFORTS

- During fire suppression efforts, a DHNRCA representative will be available to advise the incident commander regarding the protection of sensitive resources.
- The Land Steward employed on site will be kept informed of proper fire procedures including the availability of fire fighting resources, available water sources, and preferred standards and placement of fire control lines.
- Fire suppression activity should make use of plain water, "wet water," or foam.
- When fire occurs along the DHNRCA boundary, the DNR will work cooperatively with Spokane County Fire Districts One and Eight to suppress the fire.
- Mop-up activities should generally be restricted to use of water or water with foam and hand tools. Any activity that could produce slumping or increase sedimentation into ponds, wetlands, or springs should be avoided. Any activity that would alter the flow of water into or out of the ponds, wetlands, or springs should be avoided.
- Rehabilitation after fires will be by natural processes, unless erosion is a concern, then water bars and grass seeding with native species, are the preferred approaches.

Law Enforcement

DNR staff or commissioned volunteers may be responsible for enforcement of fire regulations, trespass, and recreation regulations on the DHNRCA.
Enforcement will emphasize education, legal interpretation and voluntary compliance whenever possible. If violations of the game laws or other serious crimes occur, the landowners will seek cooperative assistance from the Department of Wildlife, Spokane County Sheriff or Washington State Patrol.

RECOMMENDATIONS FOR ENFORCEMENT ACTIONS

- Grant police powers/warden's commission to and train the DHRCA Land Steward and commissioned volunteers in non-confrontational law enforcement techniques.
- Authority to issue citations for non-permitted use as outlined in this management plan.
- Provide radio or cellular phone for DHRCA Land Steward to contact DNR, fire districts and County Sheriff personnel.
- The DHNA will patrol the DHRCA to monitor and assist in the enforcement and education of users.

Emergency Response

The landowners will work cooperatively with Spokane County Sheriff's Department to provide adequate emergency response. The Land Steward will help with logistics, information on topography, infrastructure and access.
DHNRC\textsuperscript{A} Expansion Recommendation

The DHNRCA is a relatively small land mass surrounded by an urbanizing landscape. Given the size of the DHNRCA, and the enveloping development, the site alone seems incapable of supporting viable populations of most native mammals observed in the Hills. To maintain the mammalian fauna of the area, the addition of the Tower Mountain Area to DHNRCA is essential. At a minimum, a corridor at least 1500 meters wide connecting Dishman Hills and Tower Mountain should be maintained. Due to rapid development around the DHNRCA the Advisory Committee determined a map of the ecological boundary could not be developed.

Instead, suitable land that should be considered for future expansion of the DHNRCA lies in the undeveloped portions of:

- Township 25 North, Range 43 East W.M., in sections W\textsuperscript{\frac{1}{2}} 29, 30, 31, and W\textsuperscript{\frac{1}{2}} 32;
- Township 24 North, Range 43 East W.M., in sections E\textsuperscript{\frac{1}{2}} 1, E\textsuperscript{\frac{1}{2}} 12, NE\textsuperscript{\frac{1}{4}} 13;
- Township 24 North, Range 44 East W.M., in sections S\textsuperscript{\frac{1}{2}} 5, 6, 7, 8, W\textsuperscript{\frac{1}{2}} 9, 17, and 18.

Land within these sections may be acquired by the DHNRCA landowners from willing sellers or through conservation easements with willing parties without further public review.
Glossary

Act: Revised Code of Washington statutes governing establishment, acquisition and management of NRCAs (RCW 79.71)

Buffer: An area that surrounds and protects an environmentally sensitive area from adverse impacts to the functions and values of that area

Concave Slope: A slope that is curved or rounded inward like the inside of a bowl. Concave slopes generally have deeper soils, are cooler and more moist than convex slopes.

Convex Slope: A slope that is curved or rounded like the exterior of a sphere. Convex slopes generally are drier, warmer and have shallower soils than concave slopes.

County: Spokane County Parks and Recreation Department

Critical Habitat: Those areas which are necessary for the survival of priority species

Cultural Resources: Archaeological and historical sites and artifacts

DHNA: Dishman Hills Natural Area Association

DHNRC: The Dishman Hills Natural Resources Conservation Area

DNR: The Washington State Department of Natural Resources

Ecological Boundary: Land that has natural plant communities, aquatic communities, or habitat and populations for threatened, endangered and sensitive plants or animal species. Also included is the land that is needed to buffer or connect the pieces of highest value.

Ecosystem: All components of a biological system and its physical environment, together with the natural processes and interrelationships involved

Enhance: To re-create one or more characteristic that existed on the site before alteration

Exotic: Any species of plants or animals that do not occur naturally in the Northeast Washington region

Indigenous: Occurring naturally in a particular region or environment

Low-Impact Public Use: Public recreation uses and improvements that do not adversely affect the resource values, are appropriate to the maintenance of the site in a relatively unmodified natural setting, and do not detract from long-term ecological processes.
Maintain: To keep in an existing state; preserve from failure or decline

Mitigation: Minimizing or compensating for adverse environmental impact

Monitoring: The collection and analysis of data by various methods for the purposes of understanding and documenting changes in natural ecosystems and features

Native Vegetation: Vegetation which is indigenous to the area in question

NRCA: Natural Resource Conservation Areas designated under RCW 79.71 and subsequent legislative actions

RCW: Revised Code of Washington

Restore: To ameliorate human disturbance to the landscape

Special Populations: Native species which have not been identified by the Department of Wildlife as priority, but which are considered special within the DHNRCAs because of their relatively high number, and/or because of unusually favorable viewing conditions

Stewardship: Management activities that are intended to maintain, restore or enhance resources

WAC: Washington Administrative Code

Wetlands: Lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface

Wildlife: All species of the animal kingdom whose members occur naturally in Washington and exist in a wild state. Feral domestic animals are not included.
Reference Literature


**Included:**


Appendix A — History of Ownership

The Dishman Hills Natural Area Association (DHNAA) had been working for many years to protect and preserve the area prior to the formation of the DHNRCA. Without this organization's efforts much of the land would have been platted and developed for housing.

The DHNAA is a nonprofit organization responsible for founding the Dishman Hills Natural Area project in 1966. Incorporated in that year, the DHNAA asked The Nature Conservancy for help. The Nature Conservancy loaned DHNAA part of the money for the purchase of 80 acres. DHNAA, with private donations, completed repaying The Nature Conservancy in 1970. The Association purchased an additional 140 acre parcel in 1985 and acquired a six acre parcel in 1987.

The DHNAA has made significant contributions to the Advisory Committee by attending land use hearing and providing technical assistance, as well as information sharing, from historical lore to biological inventories.

Spokane County Parks and Recreation owns about 228 acres of the natural area. This acreage was purchased with donations from Ina H. Johnston, the DHNAA, and state and federal matching funds. County Parks also owns and manages Camp Caro, a six acre parcel with a natural lodge that lies at the north end of the DHNRCA. The Redeemer Lutheran Church donated the Camp Caro property to County Parks Department in 1970.

With the passage of the Natural Resources Conservation Area (NRCA) legislation in 1987, the Dishman Hills Natural Resources Conservation Area was created. The Nature Conservancy bought 70 acres in the northwest portion in 1988. The Nature Conservancy then sold it to Washington State's Department of Natural Resources in 1989. The Washington State Legislature provided the money for its purchase.
Appendix B — Sensitive Resources

Forest Communities

DESCRIPTION
The forest communities that cover most of the DHNRCA characterize the Spokane Valley before European settlement. These communities are in good ecological condition. The predominant tree species throughout the DHNRCA is ponderosa pine. In the ponderosa pine community types, Douglas fir is absent or occurs sporadically. In the Douglas fir community types, Douglas fir plays a major role in the overstory and/or in the reproduction layer of the forest stand. Ponderosa pine may be codominant in the overstory. The vegetation in the understory of these communities is typically dominated by native grasses, herbs and shrubs.

Ponderosa Pine/Snowberry
The principal plant community present within the DHNRCA is dominated by an overstory of ponderosa pine. Occasional Douglas fir individuals occur at low densities throughout this vegetation. The primary tall shrub within this community is serviceberry. Low shrubs include snowberry and white spiraea. Perennial bunchgrasses dominate the herb layer. These include two native species of fescue: rough fescue and Idaho fescue. A variety of herbaceous perennial species play a more minor role in the total composition of the community. Based on dominant species in the tree and shrub layers, this plant community is best described as a Ponderosa pine/snowberry (Pinus ponderosa/Symphoricarpos albus) plant community type.

Ponderosa Pine/Idaho Fescue
A second plant community occupies less than 10% of the DHNRCA. The dominant vegetation is similar to that described for the Ponderosa pine/snowberry type with one important difference. The Ponderosa pine/Idaho fescue (P. ponderosa/Festuca idahoensis) community type does not have a well-developed shrub layer present. Serviceberry occurs in small amounts; snowberry and white spiraea are absent. This lowered shrub dominance results in the native bunchgrasses being a much more conspicuous component of the community.

High quality examples of the two Ponderosa pine communities occur south, southeast and north of East and West Ponds in the northwest portions of the DHNRCA. These areas are distinctive owing to the high coverage of the two principal native bunchgrasses—rough fescue and Idaho fescue.

Douglas Fir Association
Many ravines wind throughout the DHNRCA. These areas vary in their vegetative composition and dominant species. For the most part, however, the ravines support a slightly moist (more mesic) vegetation than the surrounding
slopes. Typically, the upper tree layer supports Ponderosa pine and one or more other species, including: Douglas fir, quaking aspen, black cottonwood or water birch. Douglas fir is reproducing in the shaded understory within most ravines. Tall shrubs predominate in the understory of most ravines. Dominant and sub-dominant shrubs include: oceanspray, ninebark, serviceberry, red-osier dogwood, willow, mock-orange, snowberry and Oregon grape. Herbs and grasses typically play a minor role. Conspicuous grasses include: pinegrass, and ryegrass (*Elymus glaucus*). About 75% of the ravines could be classified as belonging to either the Douglas fir/ninebark or Douglas fir/snowberry plant association. The remaining areas are mostly dominated by deciduous, broad-leaf species such as quaking aspen, black cottonwood or water birch and do not support significant reproduction of Douglas fir.

High quality examples of the Douglas fir dominated communities occur in the various ravines scattered throughout the DHNRCA. The ravines without major trails through them tend to be in better condition. “Birch Hollow” and “Cottonwood Hollow” are relatively undisturbed examples of two different types of ravine vegetation.

**NATURAL PROCESS**

The ponderosa pine community types appear to be best developed on drier sites with shallow soils and on convex slopes. The Douglas fir community types are best developed in ravines, in deeper-soiled areas, and on concave slopes.

Major ecological disturbances, such as fire, insect and disease infestations, or severe drought, play a major role in shaping and maintaining the pine forest. Without fire or other natural disturbances to open the stand, ponderosa pine may be unable to regenerate and replace itself on moister sites where it grows with Douglas fir.

---

**Pothole Ponds/Wetlands/Springs**

**Description**

Margins of seasonal/permanent pothole ponds support mostly deciduous shrubs and trees. Various species of sedge, rush, bulrush, pondweed, and cattail dominate in deeper water areas (Schuller 1984).

Relatively undisturbed pond vegetation is found in “Lost Pond” and “Little Lost Pond.” “West Pond” and “East Pond” support additional examples of relatively unmodified “pothole” ponds. Recreational activities in these areas have begun to compromise the natural character of the pond vegetation.

East Pond supports a population of the state endangered and federally listed plant, *Howellia aquatilis* (Rice 1989; WNHP 1990). This species is notable for its lack of genetic diversity, both within and among populations (Lesica et al. 1988). Howellia is known only from five populations over its historical range, which includes Montana, Washington, Oregon, and California. Only a couple of populations are in any protected status at all (Schuller, 1984). The status of this species dictates that this population be given the highest priority for protection in the DHNRCA. A small population of the state-listed sensitive species wood sage (*Teucrium canadense ssp. viscidum*) exist in the pothole ponds. Very few populations are known in Washington, although it is more widespread elsewhere (Schuller, personal communication).
Several springs exist within the DHNRCA. These springs, along with the ponds and wetlands, provide critical habitat for mammals, birds, reptiles, amphibians, insects, and plants. The springs and grasslands of the DHNRCA are particularly important to Washington butterfly conservation (Pyle, 1989). Most of the wet areas, including trails within them and along their edges, on the DHNRCA have been degraded by past human use and this degradation continues at present. These wet areas take on significance in light of development that has occurred along the east, north, and west boundaries.

**NATURAL PROCESSES**

Water quality, quantity, timing, and duration of water levels shape and maintain these ponds, wetlands, and springs. The wet areas are critical to maintain the diversity and viability of fauna and flora in DHNRCA. These areas provide a source of water, food, shelter, and a place to reproduce for many plants and animals.

Wetlands also serve important functions in enhancing water quality through groundwater exchange, water purification, and sediment trapping.

**Butterfly Population**

DHNRCA is notable for its butterfly population, several of which are uncommon in the state. About 25 percent of the species occurring in the state have been identified in the DHNRCA. The springs and grasslands within the DHNRCA are particularly important to Washington butterfly conservation (Pyle, 1989).

**Eastern tailed blue** (*Everes comyntas*) is extremely rare in Washington and has been recommended as a state sensitive species (Pyle, 1989), pending further investigation. At present, it is unclear whether the eastern tailed blue is expanding its range into Washington or whether the species is an indigenous local rarity.

**Habitat:** The eastern tailed occurs in the area around springs. Host plants include a variety of legumes, including astragalus, lotus, lathyrus, lypinus, phaseolus, medicago, trifolium and vicu.

**Thicket hairstreak** (*Mitoura spinetorum*) species is widespread, but is rarely common locally.

**Habitat:** The adults are found primarily in the canopy of conifers where they feed on dwarf mistletoe (*arceuthobium*) which is parasitic on pines, firs, and larches.

**Compton tortoiseshell** (*Nymphalis vau-album watsmie*) is very rare in Washington, with less than thirty isolated occurrences (Pyle, 1989).

**Habitat:** The compton tortoiseshell is found in “Cottonwood Hollow” and other ravines around wetlands and pothole ponds, and in other areas where its host species occur (e.g. black cottonwood, *populus trichocarpa*, quaking aspen, *populus tremuloides*, water birch, *betula occidentalis*).

The above state monitored species are managed by the Washington State Department of Fish and Wildlife as needed to prevent them from becoming endangered, threatened, or sensitive.
Appendix C – Noxious or Invasive Plants

The source areas for most of the invasive plant species lie at low elevations outside of the NRCA. The gravel pit and former ballfield on the north side provided a source for diffuse knapweed expansion along the numerous trails which extend into the hills. The old quarry and closed road on the northeast and easterly side provide a similar springboard for movement into the NRCA. The Edgecliff hospital grounds on the west, together with roads to the southwest, provide a source area for movement of rush skeletonweed, Dalmatian toadflax, alfalfa, white sweet-clover, and woolly mullein into the NRCA. Two areas close to the west boundary have been seeded to quackgrass, smooth brome and Kentucky bluegrass.

Within the NRCA, concentrations of diffuse knapweed occur around East Pond, and adjacent to the trail network leading from the south, east and west. Reed canarygrass has recently colonized in East Pond, where it occurs in two small clones. Scotch broom occurs adjacent to a trailer park along the northeast boundary. Other exotic species are more widely dispersed throughout all or a portion of the NRCA.

It appears that dispersal of weeds is occurring via the trail system which enters the NRCA from all sides. Hikers, domestic animals, horses, motorcycles and mountain bikes are the most probable mechanisms for human-related dispersal. Wind and native animals are the most likely natural dispersal mechanisms operating. Diffuse knapweed is widely known as a tumbleweed which gets trapped in radiators, suspension systems and other vehicle parts. A strong correlation appears to exist between high use areas and diffuse knapweed population levels. The high use areas also tend to have the densest concentrations of knapweed if suitable habitats are available for colonization. This relationship also appears to hold for spotted knapweed, rush skeletonweed, goatweed, cheatgrass, Japanese brome, and white sweet clover.

Horses may act as dispersal agents for weeds by ingestion of impure feed and passage through feces. This process is also suspected as a means of dispersal for Reed canarygrass. Horses may also contribute to the diffuse knapweed invasion in areas where intensive or prolonged grazing has occurred by breaking up ground-dwelling lichens and mosses.

With this disintegration, bare mineral soil is exposed, which in many cases provides a suitable microsite for colonization of diffuse knapweed and other invasive species. Similarly, trampling and overgrazing reduces native bunchgrass cover, opening up space for colonization of invasive plant species.
Noxious or Invasive Plants

Diffuse knapweed - *(Centaurea diffusa)* - throughout, except central, south central (S.C.), especially along trails, trail termini

Spotted knapweed - *(Centaurea maculosa)* - upper elevations

Russian knapweed - *(Centaurea repens)* - local concentrations just south of NRCA

Bachelor buttons - *(Centaurea cyanus)* - roadside next to ball field

Reed canarygrass - *(Phalaris arundinacea)* - two small clones in east pond

Quackgrass - *(Agropyron repens)* - roadside, and seeded areas in S.C., S.W.

Kentucky bluegrass - *(Poa pratensis)* - roadside, and seeded areas throughout; also scattered in Douglas fir forest

Rush skeletonweed - *(Chondrilla juncea)* - outside NRCA, W.-S.W.

Canada thistle - *(Cirsium arvense)* - wet areas in S.C., S.W.

Dalmation toadflax - *(Linaria dalmatica)* - common and widespread

Goatweed - *(Hypericum perforatum)* - widespread, esp. trailsides

Alfalfa - *(Medicago sativa)* - roadside, trailside, ballfield

White sweet-clover - *(Melilotus alba)* - roadside, trailside, ballfield

Ventenata - *(Ventenata dubia)* - scattered in local concentrations throughout

Cheatgrass - *(Bromus tectorum)* - widespread, but patchy

Japanese broom - *(Bromus japonicus)* - distribution unknown

Smooth broom - *(Bromus inermis)* - Roadside and seeded areas in S.W., S.C.

Woolly mullein - *(Verbascum thapsus)* - roadside, trailside

Scotch broom - *(Cytisus scoparius)* - N.E., next to trailer park.
Appendix D — Monitoring and Research

Monitoring begins with establishment of a baseline measurement of resource condition and characteristics. Periodic remeasurement coupled with suitable historic data will show the extent and rate of change taking place within the DHNRCA. Over an extended period, trends will be established and the causative agents of change often becomes apparent. Monitoring systems must be carefully designed to capture information that will be relevant for answering future questions about resource conditions and management goals on the site.

The indicators measured during monitoring should give early warning of change, should be convenient to measure, and should distinguish between natural stress and human disturbance (Rowe). The following list includes some of the methods available to monitor and quantify change:

- Aerial photo analysis
- Historical data
- Photo points
- Visitor-use surveys
- Rapid survey techniques
- Plots or transects
- Public opinion survey

The monitoring technique selected should respond to specific management questions in relationship to the program goals. Periodic reviews will confirm whether the monitoring system is an accurate gauge of site conditions and whether the data produced is relevant to management goals.

Appropriate questions to address in monitoring the DHNRCA include:

**Ecosystem Quality**
- Occurrence and change in habitat/community types throughout the DHNRCA
- Recovery or degradation in previously disturbed sites
- Pattern and causes of fire occurrence
- The spread of exotic plants and animal species

**Sensitive Resources**
- Potential and occupied critical habitat throughout the DHNRCA

**Public Use**
- Visitor use of DHNRCA
- Public opinion about management of the DHNRCA
- Pattern and impact of unauthorized use/trespass
- The effect of public use on wildlife
- Use levels and impacts to infrastructure developed for public use
Appendix E — Public Use

Current Public Use of the DHNRCA

At the present, no formal system is in place to permit, control, or systematically record public use of the DHNRCA. The most popular uses of DHNRCA are hiking, jogging and mountain biking, based on an informal survey conducted Friday through Monday between August and November of 1992. Other uses observed include exercising dogs, horseback riding, rock climbing and off road vehicle use.

Impacts from these uses are visible, showing that active management of the DHNRCA will be necessary to meet NRCA program conservation goals.

Considerations for Accommodating Public Use

It is neither the intent nor the obligation of NRCA program lands to accommodate the entire range of demand for public recreational opportunities. As stated in the enabling legislation RCW 79.71, NRCA resources must be managed to protect natural site characteristics where low impact public use opportunities are provided. Sites will be enhanced, use will be controlled, and ecological conditions will be closely monitored and maintained to meet the conservation purposes.

Several constraints impose limitations on the type and amount of public use that can be accommodated in the DHNRCA. The first is the protective nature of the NRCA program goals. This emphasis on protection implies that public uses allowed within a DHNRCA will not compromise DHNRCA resources, leaving the landscape relatively unaltered, and avoiding adverse impacts on visitor experience.

A second consideration is the complexity and sensitivity of the resources within the DHNRCA. Even the most benign forms of public uses pose a serious threat to some of these resources. Statutory protection may require seasonal or spacial closures on parts of the DHNRCA.

A third consideration is the use of the narrow, and sometimes steep, trails by many users. This presents some serious safety concerns and can conflict between different users groups. To ensure safety and minimize potential conflict between hikers, joggers, horseback riders, and bicyclist, trails would have to meet specific standards (e.g., 12 feet wide plus a one-foot shoulder on each side with a ten-foot vertical clearance) to allow safe two-way traffic and proper sighting distance. Since DHNRCA has a limited land base, this option is not being considered because it would have a substantial impact on some of the resources we are mandated to protect.
Finally, there is the finite nature of the land base (518 acres) and the enormous population pressure placed upon the resource by its close proximity to a major population center. This is complicated by the mixture of public and private ownership.

A series of studies were conducted to inventory the resources that comprise the DHNRCA (Andelman, et. al, 1992, Rogers, T, 1991a, 1991b, 1991c, 1991d). The results of the studies were used to identify the sensitive resources to be protected (see Resource Analysis). In the next section, criteria will be established for screening human activities based on the potential impact to resources and compatibility with NRCA program goals. In turn, the criteria will be used to identify activities that will be allowed in the DHNRCA.

**Criteria for Screening DHNRCA Activities**

For purposes of comparison, activities were sorted into five categories based on their potential impact on the natural character of the environment. These are evaluated within the context of the NRCA program goals and the ability of a site to recover from impacts.

**Minimal Impact** uses are those involving minimal human activity. The visitor's focus is on the environment, not on the activity itself. If practiced on a developed infrastructure in groups of less than ten participants, these uses will not noticeably alter or consume any elements of the environment. These activities are generally acceptable in a DHNRCA wherever the human presence and necessary infrastructure are not in conflict with strategies for the protection of sensitive resources. When practiced slowly, quietly, and deliberately on the existing trails, the following represent minimal impact uses:
- Hiking
- Bird watching
- Environmental education
- Sightseeing (viewing from existing trails within the DHNRCA or from outside the DHNRCA)
- Photography

**Low Impact** uses are those involving vigorous human activity that may disturb or alter, but not consume (e.g., gathering plants, hunting, logging, or mining), some elements of the environment. This category of activities is extremely variable in terms of participant speed, noise production, visual intrusion and other aspects of potential conflict. Often the focus is on the activity rather than on the environment. In other cases, the participant is carried as a passenger on an apparatus that detracts from the natural character of the landscape by virtue of appearance, noise, or speed. Studies show that apparatus-focused recreation also causes erosion, vegetation damage, and the introduction of non-native plants. As a result, some low impact activities are not compatible in the natural context of the DHNRCA and therefore prohibited. The activities that are acceptable must be regulated through careful design of trails, facilities, signs, brochures, etc. Low impact uses include:
- Activity-focused activities
- Jogging
- Pet companion (leashed)
- Cross-country skiing
- Snowshoeing
- Rock climbing (without gear)
- Apparatus-focused
- Bicycling
- Horseback riding
- Trails for the physically challenged
- Rock climbing (with gear)

**Moderate Impact** uses are those involving human activity that disturbs, alters, and consumes some elements of the environment which can be renewed, given time. Such uses are typically not compatible with the limited land base of the DHNRCA. Occasionally, consumptive uses may be employed as a management tool to control a temporary ecological imbalance. When such management is necessary, it should be orchestrated to minimize conflict with other uses conforming to NRCA goals. Moderate impact uses include:

- Logging (selective harvest)
- Regulated hunting, fishing, trapping, stalking
- Gathering (plants, berries, firewood, etc.)
- Campfires using on-site fuels
- Camping outside of designated sites
- Target practice, paintball tag
- Pack animals, pack trains
- Motorized vehicles

**High Impact** uses are those involving human activities that disturb, alter, and consume elements of the environment which cannot be renewed, even with passage of time. These uses are in basic conflict with the philosophy of the DHNRCA management. High impact uses include:

- Mineral development
- Rockhounding involving excavation, dredging, or sluicing
- Land use conversion that conflicts with DHNRCA goals

Operational Activities are those conducted or permitted by the managing landowners while developing, operating, or maintaining the DHNRCA. These activities may range from development and maintenance of facilities to emergency fire response, to ecological research. Operational activities should be evaluated individually for compatibility with management goals and potential conflict with general public use of the DHNRCA.
Appendix F – Memorandum of Understanding

Memorandum of Understanding between Washington State Department of Natural Resources, Spokane County Parks & Recreation and Dishman Hills Natural Area Association

Concerning Cooperative Management of the Dishman Hills Natural Resource Conservation Area

This agreement, made this 17th day of August, 1993 by and between the Washington State Department of Natural Resources (hereinafter referred to as the "State"), Spokane County Parks & Recreation (hereinafter referred to as the "County"), and the Dishman Hills Natural Area Association (hereinafter referred to as the "Association") replaces the original Memorandum of Understanding dated January 8, 1991.

Whereas, the State owns 70 acres of land, the County owns 228 acres of land and the Association owns 220 acres of land at Dishman Hills in Spokane County.

Whereas, the legislature of the State of Washington has designated Dishman Hills as a Natural Resources Conservation Area.

Whereas, Natural Resources Conservation Areas were established by the legislature (RCW 79.71) because of increasing need by the people of Washington to have certain areas of the state conserved, and Dishman Hills is worthy of such conservation because of its outstanding scenic and ecological values and because it provides opportunities for low impact public use.

Whereas, the State, County, and Association believe these values and opportunities can best be provided, possibly expanded, maintained and managed at Dishman Hills through cooperation and mutual support.

Now Therefore It Is Hereby Resolved that parties to the Memorandum of Understanding agree to the following:

1. The State, County, and Association shall proceed to plan and manage cooperatively the Dishman Hills NRCA with a jointly approved site management plan that is consistent with the overall concepts and purposes of RCW 79.71 and the 1992 Natural Resources Conservation Area Statewide Management Plan.

2. The State, County, and Association shall each participate as a member of the Dishman Hills Advisory Committee in developing an NRCA site management plan.

3. Upon completion of a draft management plan recommended by the Advisory Committee, the State, County, and Association shall jointly review the draft plan and may recommend further modifications of the draft plan prior to holding public meetings and hearings, and satisfying the requirements of the State Environmental Policy Act.

The State, County, and Association, in executing this Memorandum of Understanding, reserves the right to reject all or part of the management plan as to its ownership interest(s).

[Signature]

[Date: 8/5/93]
4. Upon acceptance and adoption of a Dishman Hills NRCA site management plan, the State, County, and Association shall work together to implement the plan and cooperatively manage the NRCA.

5. The State, County, and Association, as part of the planning process, shall explore opportunities for additions or extension of public ownership to protect other areas adjacent to the Dishman Hills NRCA.

6. The State, County, and Association shall meet when requested by any signator to this agreement to review the progress of the project and discuss modifications to this MOU.

7. The State shall provide staff to draft the NRCA site plan and to establish, organize and staff the NRCA site advisory committee.

8. The State shall prepare a reconnaissance report to document natural and man-made conditions of the site for use by the advisory committee.

9. The State shall seek operation and capital development funds as necessary to implement the Dishman Hills NRCA site plan.

10. The State shall pay $5,700 to the County in addition to the previously paid land survey costs incurred under the original agreement dated January 8, 1991. The survey information is essential to future planning and management of the NRCA.

11. In exchange, the County and Association shall assist the State staff in drafting and review of the NRCA site plan and in developing a public education, meeting and hearing process required as part of the plan approval and adoption process.

12. The County shall also make staff available at public meetings, workshops, and hearings to inform and receive comments from the public in regard to the plan and future management of the NRCA. The County staff shall assist the State staff in preparing responses to public comments on the plan for review and consideration by the Advisory Committee.

13. The State, County, and Association shall jointly review the final plan and may make modifications prior to adoption.

14. Each party shall defend, protect and hold harmless the other parties from and against all claims, suits and/or actions arising from any negligent or intentional act or omission of that party's employees, agents and/or authorized subcontractor(s) while performing this agreement.

15. Any and all amendments to this agreement shall be made in writing and signed by all parties.
16. This agreement can be terminated after the parties authorized representatives have met in person to discuss the reasons for termination. After such meeting, the agreement can be terminated upon ten (10) days written notice.

The parties hereby execute this Memorandum of Understanding:

[Signatures]

Chairperson
Spokane County Commissioners

President
Dishman Hills Natural Area Association

Commissioner of Public Lands

Approved as to form:

18th day of February, 1993.

CHRISTINE O. GREGOIRE
Attorney General

By
Assistant Attorney General