

Chuckanut Biodiversity Project

Community-Based Biological Study

Proposal for Amphibian and Reptile Survey 2003-04

2/16/03 revised 3/18/03

PURPOSE

The Chuckanut Biodiversity Project is a community-based study designed to provide baseline information on the biological resources of a unique natural area and recreation destination, the Chuckanut Mountain Range. Although the Chuckanut Range is located in the City of Bellingham's "backyard," site specific information for plants and animals that inhabit the area is extremely limited. Relational habitat data is also missing for both common and rare species. Without this information it is impossible to exercise sound stewardship decisions so the area can be enjoyed by many users and still retain the natural populations of plants and animals, and the values people come to experience.

Despite popular belief, few natural areas in western Washington have been subject to full scale inventory or baseline biological study. As a means to provide critical information for long term planning and management of the Chuckanuts, this project will provide a complete list of species presence as an index of biodiversity, relative abundance of certain groups, habitat associations, identify ecologically sensitive sites and create a baseline for future comparisons and population monitoring. This project is particularly timely due to a growing concern for the future of Blanchard Mountain (southern Chuckanuts), which is now the subject of an active public preservation movement. The information yielded through this project will contribute significantly to the long term protection and restoration of this unique lowland, coastal mountain range.

The Chuckanut Biodiversity Project, will examine the biodiversity as whole of the area. Due to funding constraints, the project's initial phase is limited to one of the study components. Funds are currently available in the Wildlife Conservation Trust's budget to cover costs of this initial survey. As a result this proposal is focused on two taxonomic groups, amphibians and reptiles. It is hoped that with the successful completion of this initial phase the other study components will be funded and completed by 2005.

In addition to the survey support, this proposal includes fund raising for continued project support. The funding will be sought from state and local agencies, user groups, local businesses, corporations and foundations. Consider support for the Chuckanut Diversity Project as an investment in our Northwest's living diversity and the future.

BACKGROUND

The Chuckanut Range is located along the marine shoreline of Whatcom and Skagit Counties in northwestern Washington. It supports an increasingly rare coastal forest that extends from sea level to elevations of up to 2,000 feet and includes both Chuckanut and Blanchard Mountains. The area is covered by an extensive mixed conifer forest and an intact matrix of communities including fragile and sensitive habitats such as streams, balds, caves, cliffs, wetlands, a variety of sizable lakes and year-round ponds. Although most of the area has been logged and or burned over the last 150 years, most has regenerated into mature native second growth forest offering a range of habitats that support a wide variety of plants and animals. If viewed from a satellite, this area forms the western link in a natural east-

west forested corridor extending to the Cascades. This is the only corridor of this type and one of the most unique natural areas remaining in the Puget lowlands.

The Chuckanut Range is surrounded by a large, growing human population associated with Georgia Strait and Puget Sound. Although most of the study area is publicly owned, adjacent private property has become increasingly sought after for residential development. Bellingham is the largest and nearest city with a population of approximately 50,000. As a unique lowland natural area, the Chuckanut Range has become one of the most popular recreational destinations for hikers, mountain bikers, equestrians and hang-gliders from Seattle to Vancouver.

The Chuckanut Mountain Trails Master Plan (1996) points out the increasing use of the area and provides a comprehensive plan for the future recreational use on public lands in the Chuckanut Range. The plan recommends upgrading existing trails, as well as adding a number of new trails to the system to handle the predicted demand for increased access by growing numbers of recreationists. Another primary goal of the master plan is to maintain the ecological integrity of the Chuckanuts. Access development however will impact sensitive plants and animals unless these areas are identified and preserved in the actual sighting of new trails and access points. During the planning process little biological information and empirical data was available. Due to this missing information, the Master Plan recommends conducting an inventory of vascular plants, cryptogams (mosses, lichens and fungi), fish, wildlife and their associated habitats to guide future planning and to protect the Chuckanut ecosystem.

The Chuckanut Biodiversity Project is designed to engage the community in the identification of plant and animal resources and significant supporting habitats within the Chuckanut Range. This project would be the first complete, large scale biological inventory within a multi-ownership regime within the Puget Sound lowlands, and could serve as a model for other sites in the region.

The amphibians and reptiles are of the most vulnerable vertebrate groups in the study area. With disappearing amphibian species occurring throughout the globe and well documented declines within the Pacific Northwest, this high risk group warrants immediate attention. Through this survey, the amphibians and reptiles will be documented and mapped. With this information breeding areas and migration corridors may be protected.

STUDY AREA

The study area includes approximately 8,000 acres: from Chuckanut Creek south to Whitehall Creek - DNR property boundary, west to the marine shoreline and east to Lake Samish (Figure 1 and 2). The majority of the study area will be located on publicly held lands in both Whatcom and Skagit Counties, including Washington State Parks, Department of Natural Resources, Whatcom County Parks, Bellingham Parks and Greenways. Large private holdings may also be included where the owners are willing.

GOALS and OBJECTIVES

The primary goal of the Chuckanut Biodiversity Project is to inventory the biological resources of the Chuckanut Mountain Range. The information generated from this project shall serve as a guideline for conservation and project planning in the Chuckanut Range and preservation of Blanchard Mountain.

Following is a summary of goals and objectives:

- Review historical information

Objective: provide historical or past occurrence/distribution of species

- Determine the species currently present in the study area.

Objective: produce a complete species list and database of amphibian and reptile species present in the study area. Provide habitat. Utilize this list as an preliminary index of biodiversity.

- Identify ecologically sensitive or otherwise significant areas.

Objective: identify in the field and map sensitive or otherwise significant areas. Clearly describe criteria for such determinations.

- Provide a baseline inventory upon which to found further biological investigation.

Objective: produce a map showing habitats, and general species distribution within the study area. Compile information on a standardized database for future access, input and tracking.

- Develop a volunteer pool for current and future stewardship and monitoring activities in the Chuckanuts.

Objective: create a trained pool of volunteers to monitor those areas identified as sensitive and act as stewards for the public lands included in study area. These individuals will ensure that the information generated from this study will be updated and applied as needed in land use/recreational use decisions and management over time.

METHODS

Inventory methods will be based on standard field protocol for determining species presence within the study area. Because the study will cover a large area on both public and private lands (where owners are willing), the methods selected will emphasize surveying the maximum number of habitats in the least invasive manner. Field data will be collected over 6 months. This study will be performed in four stages: a paper inventory, training of volunteer field assistants, field work, and data analysis.

- Paper Inventory - Prior to initiating field work, a paper inventory will be conducted to enable researchers to identify areas with the greatest potential for diversity in order to maximize field efforts. The paper inventory will include review of topographic maps, aerial photographs, and historical reports of species presence.
- Volunteer Recruiting and Training – Volunteers will be recruited for the entire study period (6 months). The team of volunteers will then be trained by a specialist, evaluated and monitored over the study period. Volunteer coordination will be conducted by an experienced coordinator.
- Field Work - General field methods will be oriented towards collecting qualitative data with methods that emphasize surveying the largest area. Specific sampling methods will vary by taxonomic group.
- Data Organization – Data collected will be documented on uniform data sheets and through photographic documentation. No specimens will be collected or removed from the environment. Data will be entered in standard spreadsheets for future analysis. Species occurrence and life stage information will also be mapped using ArcView GIS software.

AMPHIBIAN METHODS

Methods to locate terrestrial, stream and pond breeding amphibian species differ, although all will use some form of a Visual Encounter Survey (VES) (Heyer et. al. 1994). Nomenclature will follow current published references.

- Terrestrial breeding amphibians

Terrestrial amphibians are the most difficult to locate due to their fossorial lifestyle, living in duff and rotting logs. They rarely are observed traveling over the surface. The most successful methods used to locate these animals involves slowly walking through the habitat checking under all logs, the bases of stumps, within large ferns, and raking the duff (Corn and Bury 1990). Depending on the intensity of the survey, these methods can be destructive to the habitat. This study will use an intermediate level survey which is less destructive and entails looking under logs and duff, returning all cover objects to their original location. Specimens will be captured, identified, measured and released. The optimum time to survey for these species is during the rainy seasons (Spring and Fall).

- Stream Breeding Amphibians

The least invasive method to use for amphibians inhabiting streams is to use a view portal that allows viewing the stream without disturbing the substrate. Specimens will be netted, identified, measured and released (Bury and Corn 1991). This method will most likely locate larval and juvenile forms of these species. Adults are difficult to locate and would require more time consuming and expensive methods, but may be detected by the terrestrial survey methods. The best season for stream surveys is during the summer when water levels are low.

- Pond Breeding Amphibians

This group is relatively easy to survey, and often provides some of the most important information. Pond breeding amphibians often use the terrestrial habitat, but congregate in lakes, ponds and wetlands to breed. Identifying which lakes, ponds and wetlands are important breeding areas is invaluable information for management of these species. Two methods will be used to survey for pond breeding amphibians; sweep searches along the shoreline to capture adults or larvae, or walking or floating along the shoreline identifying egg masses. The preferred and least invasive method is to survey for egg masses, but not all species have obvious egg masses and the time window for laying for some species is small and easily missed in such a large study area. This study will emphasize the latter method (Fellers and Fresl 1995).

REPTILE METHODS

Methods used for reptiles will be the same as those for the terrestrial amphibian survey (Corn and Bury 1990). Special emphasis will be placed on surveying rock outcrops, balds, talus and wetlands. Locations of all hibernation sites will be marked in the field and mapped as accurately as possible. Nomenclature will follow current published references.

PRODUCTS

Results will be presented in three formats:

- **Report** - The report will provide an annotated species list using current nomenclature. Annotations will include general notes on abundance and distribution, atypical specimens encountered, native and non-native status, and federal and state status. A description of habitats within the study area will include dominant vegetation types, structure and age. A description of areas that are considered sensitive or otherwise significant will be included, as well as the criteria for such a determination.
- **Maps** - A GIS system will be employed to organize and map species and habitat information. The resultant maps will indicate habitat areas, general species distribution and locations of sensitive habitats.
- **Database** - A database will be developed that will store all data collected in a format compatible with regional natural resource tracking systems to ease data transfer and to enable future monitoring.

RESEARCH PERSONNEL

- Vikki L. Jackson is a professional ecologist and owner of Northwest Ecological Services, LLC. Vikki will provide herpetology expert oversight, assist in setting up the project and survey layout, and provide volunteer training. She holds B.S. and M.S. degrees in Biology as well as a B.A. degree in science education from Western Washington University. Vikki has been working as a professional ecologist for the past twelve years. Her background includes experience in botanical and wildlife field surveys, wetland delineation, wetland and riparian restoration, and as an educator at the secondary and college levels. Her special area of interest is herpetology and she has recently helped coordinate an amphibian survey for The Nature Conservancy.
- Ann Eissinger is a professional wildlife biologist and owner of Nahkeeta Northwest. Ann is the originator of the Chuckanut Biodiversity Project and has participated in an earlier assessment of natural resources within the Chuckanut area. Ann will contribute her project management and field research expertise to the study. Ann's educational foundation in Biological Science and twelve years of professional experience will provide solid project oversight and management.
- Jean Olson is a professional biologist and GIS specialist. Jean will coordinate, enter data, map results and provide project support. Jean holds a B.S. in Biology from Walla Walla College and a M.S. from Western Washington University. Jean is experienced in coordinating volunteers for scientific field survey, collecting and organizing data and mapping results of field survey data. Her general support is essential for the project.

Personnel Responsibilities

Study design and layout: Vikki Jackson and Ann Eissinger

Summarize Existing Information: Ann Eissinger

Volunteer Training: Vikki Jackson

Volunteer recruitment/coordination: Jean Olson

Data entry/organization: Jean Olson

GIS mapping: Jean Olson

Data analysis: Ann Eissinger, Vikki Jackson, Jean Olson

Final report preparation: Ann Eissinger, Vikki Jackson, Jean Olson

SCHEDULE

The schedule for the Amphibian and Reptile Survey project would span over a year and a half and commence immediately upon approval of the project by the Wildlife Conservation Board of Directors. The schedule would be divided into nine increments as follows:

- April/May Project start up, finalize survey methods/forms, set survey locations
- May Recruit volunteers
- June Train volunteers
- July-September Stream/general surveys
- October-November Terrestrial/general surveys
- February-March Terrestrial/early pond/general surveys
- March-June Pond/general surveys
- August-Sept Compile data and prepare results
- October 2004 Present final results

• OPERATING ORGANIZATIONS

Support and volunteer participation is being requested from the organizations listed below, many of whom served on the Chuckanut Master Trail Plan Steering Committee and have a vested interest in the stewardship of the Chuckanuts. Those that have indicated support (*)

Bellingham Parks and Recreation
Koma Kulshan Chapter of the Washington Native Plant Society*
Bellingham Mountaineers*
Bellingham Bay Aquarium*
North Cascades Audubon Society*
Northwest Mushroomers*
Pacific Northwest Amphibian and Reptile Consortium - PNARC
Pacific Northwest Trail Association*
Skagit County Parks
Skagit Audubon Hiking*
Skagit Valley College - Environmental Conservation Program*
Washington Department of Natural Resources
Washington Ornithological Society
Washington State Department of Fish and Wildlife*
Washington State Parks and Recreation*
Whatcom County Parks and Recreation*
Whatcom Land Trust