# Important Bird Areas of Washington

Compiled by Tim Cullinan

Audubon WASHINGTON

June 2001

Olympia, Washington

**P.O. Box 462**
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# Important Bird Areas of Washington

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# Foreword

We're proud to present *Important Bird Areas of Washington*, Audubon's first effort to scientifically identify places throughout our state that are essential to maintaining healthy bird populations. This book represents thousands of hours of work by Audubon chapter members, staff, and volunteers; and by our many partners in the scientific community, government agencies, and other conservation organizations. We especially applaud Tim Cullinan, Audubon Washington's Director of Science and Bird Conservation, whose exceptional skill as both scientist and communicator provided indispensable leadership for this first phase of the IBA project.

With this documentation of our Important Bird Areas (IBAs), Washington joins a worldwide effort to identify key places with significant bird populations. Our state, a vital link on the Pacific Flyway, provides habitat for more than 350 species of birds. Many of our migratory birds depend on small staging areas during their long journeys, like the millions of arctic-bound sandpipers that stop in more than 21 sites now formally identified as IBAs.

In Washington, our native flora and fauna are still fairly widespread and healthy. Yet, our human population is expected to increase by fifty percent in the next fifty years, which will put even greater pressure on habitat. This directory provides a tool for citizen activists, local governments, state and federal agencies, and non-governmental organizations to develop effective conservation strategies. It provides a framework for making decisions today that will protect areas that birds rely on for their well-being now and in the future.

So, in the spirit of John James Audubon, we commend this book to you, and wish you "Good birding!"

**Jeff Parsons**
*Executive Director*
Audubon Washington

**Helen Engle**
*Chair*
Audubon Washington Stewards

# Acknowledgements

The Important Bird Area program would not have been possible without the dedication, commitment, and teamwork of many people and organizations. Audubon Washington happily shares credit for the program's success with hundreds of Audubon members, conservationists, professional biologists, government agency personnel, students, birders, and other volunteers; and with the organizations that provided funding.

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Christi Norman and Bríd Nowlan led the production of this book, enlisting artist Ed Newbold, who painted the color plates; Al Tietjen, who designed the layout and drew the pen-and-ink illustrations; and copy editor Elsa Gruber. We are especially grateful to our chief editor, Hilary Hilscher, who generously donated her time and expertise to the production of this book.

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As with any endeavor the size of the IBA program, the invaluable contributions of some individuals may not have been documented. We extend our heartfelt thanks to everyone who participated in the IBA program, and offer our sincere apologies to anyone inadvertently omitted from these acknowledgement lists.

This project was made possible by generous grants from the following organizations: The Washington Department of Fish and Wildlife Cooperative Projects Fund, Batdorf and Bronson Coffee Roasters, the Bullitt Foundation, the Greater Wenatchee Community Foundation, the New York Community Trust, Olympia Federal Savings, the Rathmann Family Foundation, the Seattle Foundation, and the Whatcom Community Foundation.

Finally, I thank my wife Val for tolerating my many late nights at the keyboard, and my many weekends away from home during this effort.

*Tim Cullinan*

# Introduction

This publication presents the initial results of the Important Bird Area (IBA) program in Washington. Like IBA programs in other states and countries, ours has two primary and complementary goals: (1) to identify the sites in the state of Washington that are the most essential for long-term conservation of birds, and (2) to take action to ensure the conservation of these sites.

An Important Bird Area is a site that provides essential habitat for one or more species of birds. In most cases, IBAs are discrete sites on the landscape. As with all IBA programs, Washington's sites were chosen carefully, using standard biological criteria and expert ornithologists' review. All sites nominated as potential IBAs were rigorously evaluated to determine whether they met the necessary qualifications. IBAs represent both terrestrial and aquatic sites that are critically important to birds during breeding, wintering and migration.

The purpose of Audubon's nationwide IBA program is to identify in each state a network of sites essential to maintaining naturally occurring populations of birds, and to protect or manage those sites for long-term conservation. Each state has established an IBA program in its own unique way, but the goals, methods and outcomes are consistent across state and national programs.

The basic procedure for any IBA program has six key steps:

1. Establish objective, state-specific criteria for identifying IBAs.
2. Solicit IBA "nominations" from Audubon chapters, birders, scientists, land managers and owners, and other interested parties.
3. Collect data about the sites.
4. Evaluate data from each nomination and determine if the site meets the qualifications necessary to be an IBA.
5. Enter information into a database and report the results of the IBA inventory.
6. Collaborate with local, regional and statewide groups to establish conservation priorities and develop conservation plans for threatened or high-priority IBAs.

This publication contains, in part, the results of the first five steps. The sixth step will be accomplished in the second phase of the program.

This directory contains an accounting of all the IBAs in Washington identified to date. It should be regarded as a status report on the first round of nominations and site selection. The task of gathering credible ornithological and ecological information on all the potential IBAs in a state is enormous. This is especially true in a state as large and diverse as ours. Audubon staff, chapter members, and other dedicated volunteers worked diligently to gather the information necessary to identify and evaluate sites, but it was not possible to create a complete database in the first two years of the program. Consequently, we are aware that there are sites that have been overlooked. These will be inventoried and evaluated in the near future, and those that qualify will be included in a future edition of this publication.

## Background

The Important Bird Area program is a global effort. It began in Europe in the mid-1980s, when a committee of scientists from the International Council of Bird Preservation (since renamed BirdLife International) sponsored an intensive inventory of key sites for birds throughout the continent. The scientists used an objective set of criteria to determine whether a site was an "Important Bird Area," focusing on wetlands, aquatic habitats and sites where birds congregated in large numbers.

The initial product of that effort was the book *Important Bird Areas of Europe*, published in 1989. It identified over 2,400 IBAs in 31 countries and provided brief descriptions of each site and its bird life. By the year 2000, the list of IBAs in Europe had grown to 3,600 sites in 51 countries, covering seven percent of the European land mass.

*Important Bird Areas of Europe* is more than a mere catalogue of key bird habi-

tats. It serves as a blueprint for bird habitat protection throughout the continent. Shortly after the first edition was published, the European Community endorsed the findings of the IBA survey and encouraged its members to give "Special Protection" status to Important Bird Areas. Many countries responded favorably. For example, Denmark has now protected up to 97 percent of the IBAs within its borders. By the mid-1990s, hundreds of sites comprising almost sixteen million acres of habitat in Europe had been given some special protection.

Important Bird Area inventories have been or are now being conducted in 100 countries, on nearly every continent. IBA inventories are complete for Europe, the Middle East, and much of Africa. In North America, a first volume of Important Bird Areas in Canada, Mexico and the United States (50 sites in each country) was published in 1999 by the Commission on Environmental Cooperation, a tri-national body created under the North American Agreement on Environmental Cooperation. As of summer 2001, Canada's Important Bird Areas program has collected data on 600 sites and has initiated conservation planning on about 150 of these. The Mexican IBA program, *Areas de Importancia para la Conservacion de las Aves*, has identified most of the qualifying sites and has established a hierarchy of conservation priorities for that country's IBAs.

The mid-1990s saw the creation of the American Bird Conservancy, the U.S. affiliate of BirdLife International. During the same time period, the National Audubon Society completed a long-range strategic plan, refocusing on its historic mission to conserve birds, other wildlife, and their habitats. Together, the American Bird Conservancy (ABC) and Audubon brought the IBA program to the United States. The ABC took on the task of identifying Important Bird Areas of national significance, while Audubon chose to conduct IBA inventories of individual states.

A pilot project was begun to identify and describe the Important Bird Areas in Pennsylvania in 1995, and a similar project in New York State soon followed.

Since then, most of the remaining states have begun IBA projects. As of summer 2001, IBA inventories are either complete or in progress in 30 states.

In late 1997, Audubon Washington entered into a partnership with the Washington Department of Fish and Wildlife (WDFW) to begin an Important Bird Areas program in our state. Funding came from WDFW's Cooperative Projects Fund to help defray the travel costs of volunteers participating in the program. In 1998, volunteers were trained and data collection began. During the next two years, seventy-five sites were formally nominated and evaluated; additional evaluations are ongoing. This publication describes the first 53 sites selected as IBAs in Washington.

## Goals of the IBA Program

The primary goal of the IBA program in Washington is to identify and describe specific places on the landscape that are essential for sustaining wild bird populations in our state. The aim is to provide landowners and managers, planners, developers, regulators, conservationists, and other interested parties with reliable information on where the birds are, in order to support sound land use and management decisions. By establishing science-based priorities for identification and conservation of IBAs, and by creating awareness of the places vital to the survival of bird populations, the IBA program promotes thoughtful, sensible decisions regarding land use and development.

The IBA program is, of course, more than just an information-management exercise. The ultimate goal is to slow the tide of habitat loss and to create safe havens that ensure healthy habitats for productive breeding, wintering and migration. The objective is to foster sound stewardship of vital bird habitats in Washington and to guarantee that the ornithological values of these sites will continue in the future.

# Site Identification and Selection

## Biological Rationale

The Important Bird Area concept is a site-based approach to wildlife conservation. It recognizes that there are some places on the landscape that provide exceptionally valuable habitat for birds. Enlightened management of these most-critical sites is an important approach to conservation. Many species can be effectively conserved in this manner.

Because of the gregarious nature of some species — such as herons, waterfowl, shorebirds and seabirds — sites with extraordinary values for these species are easily recognizable. In the case of more widely dispersed birds, most rare or declining species are closely associated with a specific habitat type or with a narrow range of habitats. Consequently, by recognizing and identifying the highest-quality examples of such habitats, we can delineate sites that will form the basis of a landscape-level conservation network. In either case, experience has shown that sites with high value for one bird species often support numerous species.

The IBA selection process examines sites based on: (1) the presence and abundance of birds, and/or (2) the condition and quality of the habitat. We seek, primarily, sites that support rare species, or an exceptional abundance of one or more species, or sites that contain large and relatively undisturbed examples of native habitats.

## The Selection Process

The IBA program in Washington began in late 1997, when a team of bird experts from across the state developed selection criteria for IBAs. The team of eight people (the Expert Team) included expert birders, ornithologists, wildlife managers, and members of academia from most regions of the state. Using criteria from several eastern states as models, the Expert Team developed a set of draft standards for sites to qualify as Important Bird Areas (see next section).

It was immediately recognized that the criteria developed in the eastern U.S. could not be easily applied here. Therefore, selection criteria were deliberately left in draft form, with the understanding that they would be revised as the Team learned more about the characteristics of key bird areas in Washington. The selection criteria were made final in autumn 2000.

The IBA identification and selection process involved two steps: nomination of sites, and evaluation by the Expert Team. Nominations for IBAs were solicited from Audubon chapters, other bird advocacy groups, landowners and managers, natural resource agency personnel, and other interested parties. A site nomination involves completing a five-page form that provides information about the physical and biological characteristics of a site, its ornithological significance, habitat, land use, ownership, and potential threats to birds and habitat (see Appendix A). The Expert Team assisted in the design of the nomination form.

Audubon Washington began distributing IBA nomination forms in summer 1998. With grant funding from WDFW, we sponsored a two-day training session for our Audubon chapter leaders, to familiarize them with the IBA project and to train them in the identification and nomination of sites as IBAs. Ninety-three people, representing 23 of Washington's 26 local Audubon chapters, attended the training session.

Audubon chapter leaders recommended that the first step in the identification process be a list of potential sites. This list would serve two purposes. First, it would assist the staff in determining the scope of the project; second, it would allow us to coordinate among chapters the task of filling out nomination forms, to prevent duplication of effort. We used two methods to generate the initial list. Participants in the training session drew potential IBAs on a large-scale map of Washington. They then polled chapter members about likely IBAs in their areas and submitted descriptions of potential IBAs on an abbreviated, one-page version of the nomination form. With the use of these methods we identified nearly 160 sites as potential IBAs.

When nominations were received, the IBA coordinator summarized the information and sent it to members of the Expert Team for review. They evaluated the information and recommended that a site be either accepted or rejected as an IBA, or they requested additional information. Nominations and supporting information were kept on file, and summary data about each nominated site were stored in an ArcView database at Evergreen State College.

As of this writing, BirdLife International and the National Audubon Society are making final the American version of the *World Bird Database,* to be used by all states with IBA programs. This data management system is currently in use in most countries with IBA programs. When it becomes available for use by individual states, all of the Washington IBA data will be entered and stored on the *World Bird Database* system, where it will become part of the worldwide system and will be available for retrieval from the BirdLife International web site.

## Selection Criteria

An Important Bird Area is a site providing essential habitat for one or more native species of birds in Washington at any time in their annual life cycle. Sites vary in size, and are usually distinguishable from surrounding areas in character, habitat, or ornithological importance. In most cases, sites are delineated by clearly recognizable physical features that separate them from adjacent areas. Boundaries include rivers, roads, ridgelines, abrupt habitat edges, and other clear landmarks. When possible, the boundaries of an IBA are drawn to encompass most of the birds' needs (e.g., feeding and roosting areas) during the seasons for which those are important.

In general, IBAs are predominantly natural areas. Human-made habitats such as landfills and sewage lagoons are generally not considered IBAs. Further, there should be reasonable potential for IBAs to receive additional protection and/or enhanced habitat management in the future, for the benefit of birds.

*Location of IBA sites in Washington*

Standardized criteria are used to identify and select Important Bird Areas. These criteria are biological in nature and reflect the quantity and/or quality of bird life in given areas. The criteria are not designed to evaluate the educational value or the recreational birding values of sites. While every attempt is made to fulfill one or more of the criteria when nominating sites for IBA designation, the criteria are not absolute and other factors, such as importance relative to other sites, may be taken into account when making final selections.

The criteria are divided into five major categories, described briefly below. Sites meeting one or more of these criteria can qualify as Important Bird Areas. More detailed information about the criteria can be found in Appendix B.

**CATEGORY 1:** Site for endangered or threatened species, or species of special concern in Washington.

**CATEGORY 2:** Site for species on the National Partners in Flight WatchList with significant breeding or wintering populations in Washington.

**CATEGORY 3:** Site containing species assemblages associated with a representative, rare, or threatened natural-community type in Washington.

**CATEGORY 4:** Site important for long-term avian research or monitoring.

**CATEGORY 5:** Site where birds regularly concentrate in significant numbers.

# Conservation and Management of Important Bird Areas

The ultimate goal of the Important Bird Areas program is to promote the conservation of essential habitats for birds. Because the legal, political, regulatory, and voluntary means of habitat conservation vary widely among jurisdictions, regions, and land ownership, each site must have its own individually tailored conservation strategy. Audubon Washington encourages people interested in helping conserve IBAs to talk with our state office, as well as with landowners and managers, local officials, regulatory and management agencies, and other conservation organizations. Future publications from Audubon Washington will provide a more in-depth discussion of IBA conservation and management.

## The Role of Important Bird Areas in Avian Conservation

It is important to note that the IBA program is not a panacea for bird conservation, nor is it one that will work equally well for all species. The IBA site-based approach to bird conservation is not even applicable to some species. For example, territorial species that are widely dispersed at low densities across a breeding range, such as raptors and songbirds, cannot be conserved by protecting a few sites where they are known to occur. Such species require landscape-level or management-based approaches— e.g., designing new land-use techniques that promote successful breeding and survival. *The lack of IBA status for a particular place does not imply that it is unimportant for birds.* Rather, the lack of IBA designation in that specific location may merely mean that a site-based approach to conservation is less effective than another method.

Also, the IBA program seeks to identify the most essential sites statewide. While some sites are not significant on the state level, they may nonetheless be very important for conserving birds on the county or local level. For example, many parks and green spaces in the heavily urbanized parts of western Washington provide the last refuges for birds in an entire city. Likewise, small, remnant

patches of mature or old-growth forest in landscapes dominated by short-rotation industrial forestry provide high-quality habitat for some old-growth associated birds. While such parks and remnant forests are not extraordinary from a statewide perspective—and therefore are not eligible for IBA status—they may be vital on the local level.

Though the IBA Program is not the final word on bird conservation in Washington, it is a substantial and effective tool. IBAs, together with other approaches to safeguarding birds and their habitats, will help ensure that future human generations will be able to experience the same richness and diversity of bird life that current generations now enjoy.

## General Guidelines

This publication can be used to help determine local, county, and state conservation priorities. IBA information allows different areas to be compared, using several criteria: the area's importance to birds; the nature and urgency of threats; and the feasibility of successfully implementing conservation actions. To the greatest extent possible, we have used objective, numerical criteria to assess sites. However, our information base is incomplete at this time: Not all potential IBA sites in Washington have yet been evaluated, and there certainly will be more IBA sites identified in the future.

The process of identifying IBAs has also produced data useful for guiding land use planning and habitat management decisions. Information about the species and groups present, their seasonal abundance, and major habitat types can assist landowners and managers in avoiding detrimental impacts. Some IBA descriptions are merely summaries of the data we have collected, and people interested in conservation of a particular site should contact Audubon Washington to see if more information is available.

Because the IBA concept is site-based, conservation strategies will differ from

site to site. For each IBA, owners, managers, and conservationists will need to assess the location, physical and biological characteristics, patterns of current and past land use, habitat and management needs, laws, regulations, and the availability of resources, before proceeding with any conservation strategy. Such assessments must also consider the needs and attitudes of people using the area, because the most successful and enduring conservation arises from cooperative partnerships among private landowners, public land managers, governments, individuals, and non-government organizations. The best conservation planning involves all stakeholders, and private landowners must be given the opportunity to participate in the cooperative planning process.

The Important Bird Area program carries no regulatory authority. Identification of a site as an IBA imposes no legal restrictions or management requirements on any property, public or private. It is our intent that the recognition of an area as important for birds will encourage a sense of stewardship among landowners and managers, and lead them to voluntarily safeguard the habitat and bird life on their lands. Audubon Washington's goal is to achieve—through partnerships, education, and outreach—an environment in which individuals and communities take pride in the knowledge that they are the stewards of extraordinary natural resources, and that their involvement will help ensure a better future for both birds and people.

## Site Summaries

A summary of each Important Bird Area appears in this section. The sites are organized geographically, with the state divided into four regions: Pacific Coast, Western Lowlands, Cascade Mountains, and Columbia Basin. Within each of the four areas, the sites are arranged alphabetically by site name. All sites and corresponding page numbers are listed in the index.

The summaries were compiled from information submitted in nomination forms, from published and unpublished literature, and from interviews. Printed sources are listed in the bibliography. The information in the summaries is arranged under the following headings:

- Name of Site
- Geographic Coordinates
- Elevation/Size
- Ownership
- IBA Criteria
- Habitats
- Land Use
- Site Description
- Birds and Habitat
- Conservation Issues

## Name of Site

The site name suggested by the nominator. Often, this is a name that appears on U.S. Geological Survey maps. Most site names are based on a natural landmark or geographical feature, or on a land management unit such as a state wildlife area or national wildlife refuge. In cases where a site is known by more than one name, the second is listed in parentheses. Where several geographical locations were combined into a single IBA, the names were combined.

## Geographic Coordinates

Latitude and longitude of the approximate center of the IBA.

## Elevation/Size

The site's elevation in meters above sea level, and the size of the area in hectares. One hectare (ha) = 2.47 acres; one meter (m) = 3.28 feet.

## Ownership

General land ownership categories, listed in order of relative amount from most to least. Additional information about site ownership also appears in some of the site descriptions.

## IBA Criteria

The criteria under which the site qualifies as an IBA. Additional information about the site's qualifications is found under the **Birds and Habitat** heading.

## Habitats

General categories of major habitats present on the site, listed in order of relative amount, from most to least. In some cases, additional information about habitat appears in site descriptions or under the **Birds and Habitat** heading.

## Land Use

General categories of land use, listed in order of amount, from most to least.

Additional information about land use may appear in the site description or conservation issues sections.

## Site Description

General description of the location, and the physical and ecological characteristics of the site. Additional information about ownership or management, habitat, and land use may appear under this heading.

## Birds and Habitat

Overview of why the site is important to birds. In particular, this section describes the evidence upon which the site's identification as an IBA was based. It includes available information on bird population sizes and the significance of those populations. Where a site qualifies under Category 3, the description lists the habitat and describes the assemblage of species associated with that habitat. In some cases, a separate table lists the important species or groups and estimates of their seasonal abundance, when available.

## Conservation Issues

Summary of the existing or potential threats to the birds or habitat on the site.

# Key to Codes Used in Site Summaries

## IBA Criteria

These are standardized criteria used to identify and select Important Bird Areas. They are divided into the following categories. See Appendix B for a more detailed description of the IBA selection criteria.

**CATEGORY 1:** Site for endangered or threatened species, or species of special concern in Washington.

**CATEGORY 2:** Site for species on the National Partners in Flight WatchList with significant breeding or wintering populations in Washington.

**CATEGORY 3:** Site containing species assemblages associated with a representative, rare, or threatened natural-community type in Washington.

**CATEGORY 4:** Site important for long-term avian research or monitoring.

**CATEGORY 5:** Site where birds regularly concentrate in significant numbers.

**5a.** Over a short period of time during any season: at least 2,000 waterfowl in fresh water habitats; or 5,000 waterfowl in marine/estuarine habitats.

**5b**. Over a short period of time during any season: at least 50 seabirds, in either marine or terrestrial nesting areas; or 1,000 gulls at inland sites or 5,000 gulls at coastal sites; or 50 terns.

**5c.** At least 100 shorebirds in fresh water habitats or 1,000 shorebirds in marine/estuarine habitats, over a short period of time during any season; or 12 or more shorebird species over a season (two to three months).

**5d.** At least 50 Great Blue Heron nests; or any nesting pelicans, egrets, or Black-Crowned Night Herons during breeding season; or 30 Brown Pelicans at any time of the year.

**5e.** Migratory corridor for at least 1,000 raptors (seasonal total) during

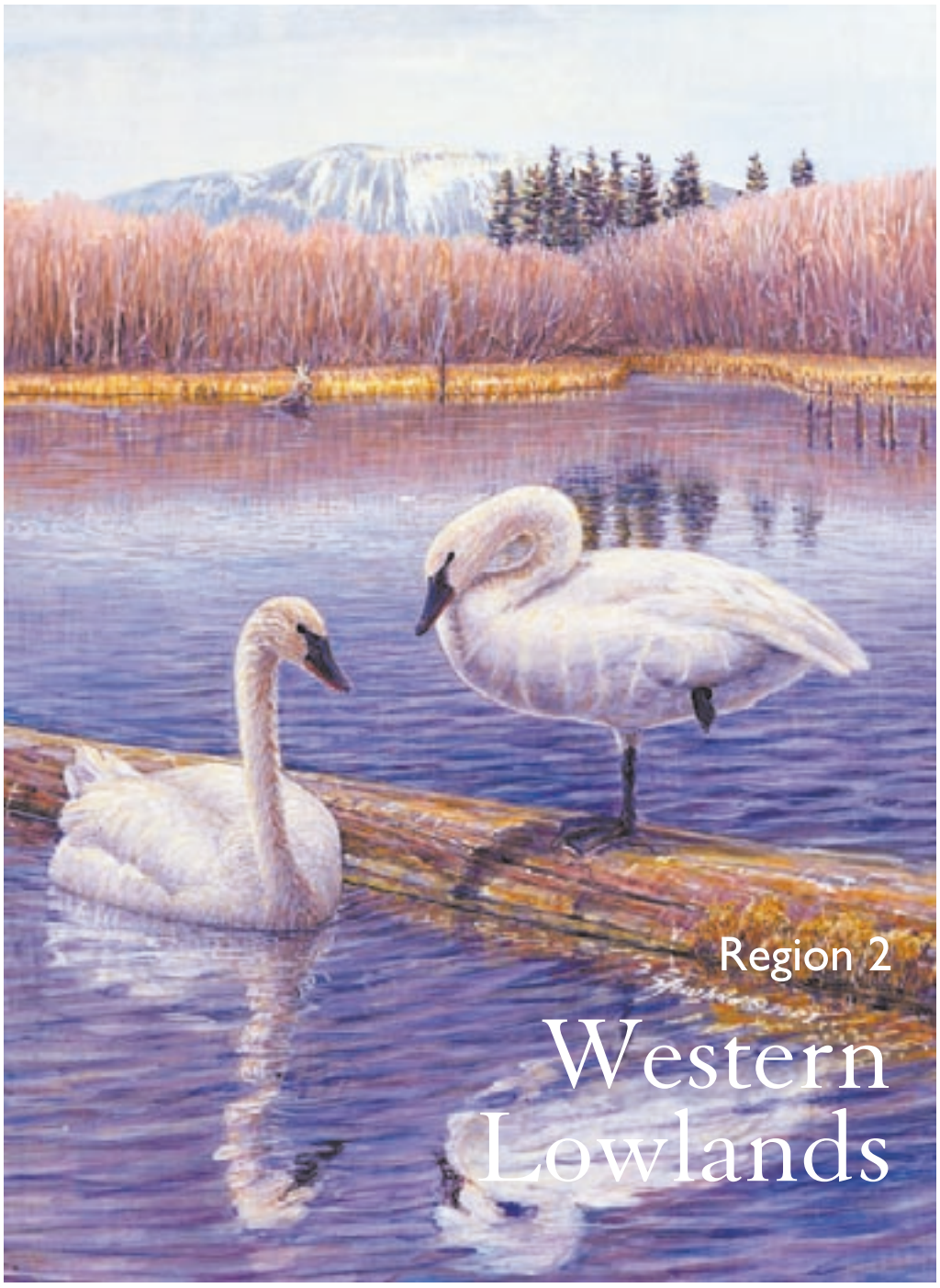
spring or fall migration; or a winter concentration area used by at least 100 raptors.

**5f.** Significant proportion of a species' statewide or regional population at one time during some part of the year.

**5g.** Exceptional number or diversity of terrestrial birds during the migration season.

## Season Codes

**W**=winter, **S**=spring, **B**=breeding, **F**=fall, **M**=migration.



Region 2

# Western Lowlands

# Crescent Harbor Marshes

48° 17′ N, 122° 37′ W 0-120 m/1,120 ha

| | |
|---|---|
| **Ownership** | Federal, city |
| **IBA Criteria** | 2, 5a |
| **Habitats** | Marine, grassland, salt and fresh water marsh, gravel shore |
| **Land Use** | Military, light residential |

## Site Description

The Crescent Harbor IBA, located three kilometers east of the city of Oak Harbor on Whidbey Island, includes the shoreline and marine waters to the 10-meter depth contour, and the adjacent uplands on the seaplane base at Whidbey Naval Air Station but excluding housing and operations areas. Fifty-five percent of the site is marine foraging area. Marine habitat also includes gravel and rock beaches, tidal channels, salt marsh, and mudflats; adjacent uplands contain open grasslands, fresh water ponds, and mature second-growth conifer forest.

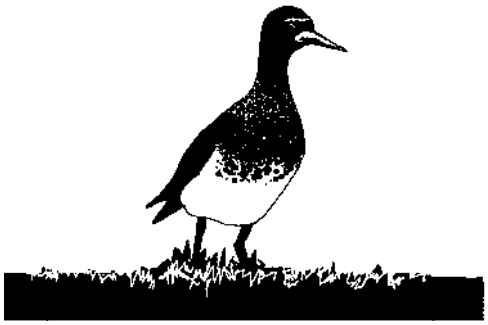
## Birds and Habitat

The uplands around Crescent Harbor support the highest density of nesting Northern Harriers in Washington. The marshes, shorelines, and marine waters support moderate concentrations of wintering waterfowl. The shorelines are habitat for an extraordinarily large concentration of one current WatchList species, the Black Oystercatcher; and smaller numbers of two former WatchList species, the Surfbird and Black Turnstone. A total of 105 species have been recorded on this site.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| waterfowl | W | 2,000 | 4,000 |
| Black Oystercatcher | W | 13 | 25 |
| Black Turnstone | W | 240 | 273 |
| Surfbird | W | 29 | 50 |

## Conservation Issues

The watershed uphill from Crescent Harbor Marshes is in private ownership. Development and an increase in impervious surfaces would raise the risk of flooding, pollution, and contamination by pesticides. Construction of bulkheads along the shorelines could alter the hydrology and put depositional beaches at risk. Invasive non-native plants also pose a threat: Reed canarygrss already covers about 10 percent of the fresh water marsh; and *Spartina*, a non-native cordgrass, has become established on part of the salt marsh.



# Crockett Lake

48° 10′ N, 122° 39′ W 0-1.5 m/265 ha

| | |
|---|---|
| **Ownership** | Private, state, county, federal |
| **IBA Criteria** | 5c, 5d |
| **Habitats** | Estuarine, open water, marsh, grassland |
| **Land Use** | Open space, agriculture, low-density residential |

## Site Description

Crockett Lake is a shallow, brackish lake and a complex of salt and fresh water marshes five kilometers south of Coupeville on Whidbey Island. It is separated from Admiralty Inlet by a narrow gravel spit. Most of the area is open water under estuarine influence. Water levels are influenced by surface runoff and by a tidegate managed by the local drainage district. During periods of low water, extensive mudflats are exposed.

## Birds and Habitat

Crocket Lake supports extraordinarily large numbers of shorebirds during autumn migration. The lake is a critically important migration staging area for 17 species of shorebirds, and for raptors such as Peregrine Falcon and Merlin that follow the migration south. The lake provides winter habitat for Bald Eagles and nine species of ducks. Whidbey Audubon Society has observed 213 species at the site. The largest concentration of Least Sandpipers ever recorded in Washington (5,000) occurred here in 1999. The lake also provides a rich foraging site for Great Blue Herons during the breeding season.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Great Blue Heron | B | 37 | 63 |
| shorebirds | SM | 8,600 | 25,000 |
| shorebirds | FM | 162,400 | 222,700 |

## Conservation Issues

The natural hydrology of the lake is has been altered by dikes, ditches, and the tidegate. The wetland may succeed to shrub communities if water levels are not carefully managed. The fresh water supply comes entirely from runoff in the surrounding 23-square-kilometer watershed, so pollution from agriculture and residential development is a threat. Disturbances from adjacent roads and increasing numbers of waterfowl hunters have been associated with a significant decrease in wintering waterfowl in recent years. The invasive, non-native Canada thistle has become established and is spreading.

# Deer Lagoon

47° 59′ N, 122° 29′ W 0 m/360 ha

| | |
|---|---|
| **Ownership** | County, private, diking district |
| **IBA Criteria** | 5a, 5c |
| **Habitats** | Brackish marsh, estuarine, open water |
| **Land Use** | Residential, pasture |

## Site Description

Deer Lagoon, the most extensive estuarine marsh on Whidbey Island, is located near the island's south end, on the north shore of Useless Bay. The site includes an open lagoon with dikes on both east and west, and an open channel to salt water. The substrate is sand, silt, and mud. Most of the lagoon and surrounding uplands are privately owned, and public access is prohibited.

## Birds and Habitat

The wetlands in Deer Lagoon provide an unusually favorable combination of fresh water and salt water habitats in an array that includes bay and tidal marshlands, an extensive brackish water pond, small islands, grass, and brushy uplands. Major wetland plants include cattail, bulrush, and invasive reed canarygrass in fresh water; and, in the estuary, pickleweed, spearscale, and saltgrass, along with invasive *Spartina*, a non-native cordgrass.

A 1986 Washington Department of Game report concluded that Deer Lagoon "is the single most important site on Whidbey Island in terms of use and importance to waterfowl. Concentrations of ducks, geese, and swans far exceed anything else found on the island." A 1989 University of Puget Sound report cited over 170 bird species: 31 species of waterfowl, 21 shorebird species, five species of

grebes, and 62 songbird species, as well as Bald Eagle and Osprey.

## Conservation Issues

Diking and ditching have changed the hydrology of Deer Lagoon and have altered habitat. Although it still retains extraordinary value, it is in a degraded condition. Ten to fifteen percent of the fresh water marsh is covered by invasive reed canarygrass, and efforts are underway to control an invasion of *Spartina*. Housing developments and a golf course drain to the lagoon, so there is a threat of pesticide and fertilizer runoff. Despite these impacts, restoration of Deer Lagoon is still feasible.

WESTERN LOWLANDS

# Drayton Harbor/Semiahmoo

48° 58′ N, 122° 45′ W 0-5 m/1,610 ha

| | |
|---|---|
| **Ownership** | City, county, private |
| **IBA Criteria** | 1, 5a, 5c |
| **Habitats** | Estuarine, marine |
| **Land Use** | Recreation/tourism, fisheries |

## Site Description

Drayton Harbor is a sheltered bay in Whatcom County partially enclosed by Semiahmoo Spit on the west. The site also includes the channel connecting Drayton Harbor and Semiahmoo Bay, the associated mudflats, and shallow marine waters north of the channel. The shoreline above high tide is extensively developed, but the shallow bay and mudflats remain relatively undisturbed. Much of Drayton Harbor and the south end of Semiahmoo Bay contain extensive intertidal mudflats.

## Birds and Habitat

The sheltered nature of Drayton Harbor, with its proximity to food sources both within the Harbor and in Semiahmoo Bay, make it a major wintering and migration staging area for aquatic birds. The extensive intertidal mudflats and shallow waters provide foraging habitat for large numbers of shorebirds and dabbling ducks. Semiahmoo Bay supports large flocks of all three scoter species; Greater Scaup; four grebe species; many duck species, including Long-tailed and Harlequin Ducks; and small numbers of alcids. Up to 650 loons have been counted here in a single day. Five surveys conducted throughout one winter in

Drayton Harbor each showed a total of more than 15,000 birds. The highest recorded counts of Red-necked Grebes (98) and Horned Grebes (382) on the Washington coast occurred in this census.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Common Loon | W | 50 | 80 |
| Harlequin Duck | W | 6 | 10 |
| waterfowl | W | 7,000 | 21,200 |
| waterfowl | SM | 5,500 | -- |
| Bald Eagle | W | 2 | 5 |
| Peregrine Falcon | W | -- | 3 |
| shorebirds | W | 5,380 | 6,910 |
| shorebirds | SM, FM | -- | 7,020 |

## Conservation Issues

The increasing popularity of Drayton Harbor as a recreational area jeopardizes its value as a winter foraging site for birds. The primary threat is disturbance from boating and other recreational activities. Expansion of two marinas in the vicinity of the channel has resulted in dredging and filling, and alteration of the natural shoreline. Residential development has removed or altered much of the natural vegetation on the shorelines, and this trend is continuing. Some shellfish beds on the west side of Semiahmoo Spit are polluted, presumably from runoff and failing septic systems. Introduction of non-native marine flora and fauna is also a concern.

WESTERN LOWLANDS

# Dungeness Bay

48° 10′ N, 123° 09′ W 0-10 m/2,203 ha

**Ownership** Federal, private
**IBA Criteria** 1, 5a, 5c
**Habitats** Estuarine, marine
**Land Use** Wildlife conservation, recreation/tourism

## Site Description

Located on the north shore of the Olympic Peninsula, this site includes intertidal and subtidal waters of Dungeness Bay, Dungeness Spit, the Dungeness River estuary, and adjacent wetlands. It comprises extensive sandflats and mudflats; some of the largest eelgrass beds in the Northwest; and a network of spits, sandbars, and small islands. Adjacent coastal wetlands contain fresh water and estuarine marshes and ponds maintained by a seasonally high water table. Dungeness Spit and adjacent intertidal areas lie within the Dungeness National Wildlife Refuge.

## Birds and Habitat

Dungeness Bay, one of the premier estuaries in the Pacific Northwest, is used by tens of thousands of shorebirds, gulls, and waterfowl during migration and winter. Its sandflats and mudflats provide extensive feeding areas for shorebirds. Subtidal eelgrass beds and associated fauna support significant populations of Brant, diving ducks, seabirds, loons, grebes, and other diving birds.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Common Loon | W | 75 | 100 |
| Great Blue Heron | W | 35 | 83 |
| Brant | W, FM, SM | 1,250 | 8,000 |
| waterfowl | W, FM, SM | 7,500 | 13,000 |
| Bald Eagle | W | 15 | 25 |
| Merlin | W | 2 | 3 |
| Peregrine Falcon | W, SM, FM | 2 | 3 |
| shorebirds | W, FM, SM | 5,000 | 25,000 |
| gulls, terns, alcids | W, FM, SM | 5,500 | 10,000 |

## Conservation Issues

The fundamental threat to this area is recreational overuse. The refuge has attractive sandy beaches, and is heavily visited by tourists. Between 1980 and 1990, recreational visits increased from 67,000 per year to 113,000. Refuge managers are frequently under pressure from local elected officials to open the refuge to more tourism and recreational uses. Eelgrass beds are in decline because of disturbance and sedimentation from adjacent upland development. The estuary is downstream from a rapidly growing suburban area that is encroaching on fresh water wetlands. Runoff from agriculture, failing septic systems, lawns, and roads poses pollution threats.

WESTERN LOWLANDS

# Eld Inlet/Mud Bay

47° 06′ N, 122° 55′ W 0 m/1,740 ha

| | |
|---|---|
| **Ownership** | State, private |
| **IBA Criteria** | 2, 5a |
| **Habitats** | Marine, estuarine, coniferous forest, mineral spring |
| **Land Use** | Open space, aquaculture, residential |

## Site Description

Eld Inlet is a long, shallow bay that lies at the south end of Puget Sound, eight kilometers northwest of Olympia. It contains extensive tidelands and marine waters within a lowland Douglas-fir forest. Mud Bay, in the south inlet, consists of extensive mudflats at low tide. There is little salt marsh, but estuarine habitat occurs at the mouths of two creeks that feed the inlet. About 80 percent of the inlet is less than 10 meters deep. In the north half of the inlet, tidelands are privately owned and used in commercial shellfish operations. Mud Bay tidelands are owned by the state.

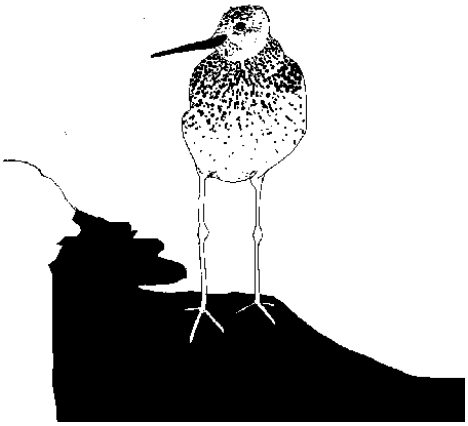
## Birds and Habitat

Eld Inlet/Mud Bay IBA supports significant concentrations of wintering waterfowl, with dominant species being scoters, Buffleheads, and Ruddy Ducks. This IBA is among the most important inland sites in the Pacific Northwest for Greater Yellowlegs. During the breeding season, substantial numbers of Band-tailed Pigeons rely on the site's mineral springs for nutrients.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| waterfowl | W | 6,978 | 10,832 |
| Greater Yellowlegs | FM | 61 | 101 |
| Band-tailed Pigeon | B | 90 | 170 |

## Conservation Issues

The greatest threat to the inlet is the impact of increasing urban and residential development in the surrounding watershed, including declining water quality from erosion; and runoff caused by grading, building, and landscaping. Runoff from pesticides and fertilizers may cause accumulations of these materials in the tideflats and may detrimentally impact the invertebrate populations that provide food for wintering birds.



WESTERN LOWLANDS

# The Great Bend

47° 22′ N, 123° 00′ W 0 m /6,070 ha

| | |
|---|---|
| **Ownership** | State, private, tribal |
| **IBA Criteria** | 1, 2, 5a, 5b |
| **Habitats** | Marine, estuarine, mixed forest, mineral spring |
| **Land Use** | Aquaculture, fisheries, recreation |

## Site Description

The Great Bend comprises the marine waters and tidelands of Hood Canal's southern hook between the towns of Potlatch and Belfair. It includes the estuaries of the Skokomish and Union Rivers, and Potlatch State Park. The waters are relatively shallow; more than 60 percent of the area is less than 20 meters deep. The adjacent uplands are dominated by coniferous forest. There is a mineral spring at the west end, in Potlatch State Park.

## Birds and Habitat

The Great Bend supports large populations of wintering waterfowl and other aquatic species, including a significant number of Marbled Murrelets. The site is thought to be one of the most important wintering areas for waterbirds in the inland waters of Washington. Dominant species include Western Grebes, scaups, scoters, goldeneyes, and Buffleheads. During the breeding season, substantial numbers of Band-tailed Pigeons use this IBA, making it the state's third most important mineral source for that species.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| waterfowl | W | 15,969 | 25,513 |
| Marbled Murrelet | W | >1% of statewide population | |
| Band-tailed Pigeon | B | 258 | 438 |

## Conservation Issues

The east end of The Great Bend has experienced moderate residential development, which has resulted in filling and armoring along the shoreline. Construction of bulkheads to protect waterfront property contributes to loss of shallow-water habitat and decline of fish resources. Runoff from residential landscaping and faulty septic systems poses a threat to water quality. Residential development pressure is expected to increase along most of the privately-owned shoreline in the future.

WESTERN LOWLANDS

# Indian-Marrowstone Island/ Oak Bay

48° 03′ N, 122° 43′ W 0-105 m/3,240 ha

| | |
|---|---|
| **Ownership** | Federal, state, county |
| **IBA Criteria** | 1, 5a, 5f |
| **Habitats** | Marine, coniferous forest, salt marsh |
| **Land Use** | Military, recreation, aquaculture, wildlife conservation |

## Site Description

This site, in Jefferson County, includes the marine environments around Indian and Marrowstone Islands; all of Kilisut Harbor, the body of water between the two islands; Oak Bay County Park and associated marine areas on the mainland; Rat Island; and selected terrestrial habitats in public ownership on the two islands. The area is primarily shallow (less than 20 meters deep) marine and estuarine habitat and tidelands, some of which contain eelgrass beds and salt water marsh. Rat Island is sandy, with low herbaceous vegetation. The selected terrestrial habitats contain coniferous forest and one small, fresh water wetland. Indian Island is a U.S. Navy base; public access is restricted.

## Birds and Habitat

This IBA supports two to three percent of Washington's Harlequin Duck population during molting season, 200 wintering Brant, and up to 13,500 wintering waterfowl. The forested areas on Indian Island have a Bald Eagle population with one of the highest densities and reproductive success rates in the state. The terrestrial habitats also support six species of owls, a breeding population of Pileated Woodpeckers, and a small colony of Purple Martins. Eelgrass beds are used by Brant and other waterfowl and seabirds. Rat Island is important

as a resting and foraging area for shorebirds, and as a haul-out for up to 300 harbor seals.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Brant | W | 200 | -- |
| Harlequin Duck | post-B | 78 | -- |
| waterfowl | W | 13,500 | -- |
| Bald Eagle | B | 13 active nests | -- |

## Conservation Issues

Expansion of naval operations and facilities are a potential threat to the coniferous forest used by Bald Eagles, owls, and Pileated Woodpeckers. Residential and commercial groundwater extraction is also a threat to terrestrial habitats. Residential development of Marrowstone Island causes fragmentation of habitat and contributes to declining water quality. The potential for increased disturbance of wintering birds grows as recreational use of the area increases.

WESTERN LOWLANDS

# Lower Dungeness Riparian Corridor

48° 05′ N, 123° 08′ W 0-145 m/1,070 ha

| | |
|---|---|
| **Ownership** | Private, county, tribal, state |
| **IBA Criteria** | 3, 5g |
| **Habitats** | Riparian forest, agricultural |
| **Land Use** | Forestry, recreation, agriculture |

## Site Description

This IBA, three kilometers west of Sequim in Clallam County, includes the Dungeness River and adjacent riparian forest, extending from the Dungeness National Fish Hatchery downstream approximately 16 kilometers to the Dungeness River estuary. It contains large stands of old-growth and second-growth riparian forest of black cottonwood, big leaf maple, red alder, western redcedar, Douglas-fir, and associated understory plants. For much of its lower reaches, the river is confined by levees; the braided stream channel has many gravel bars and side channels.

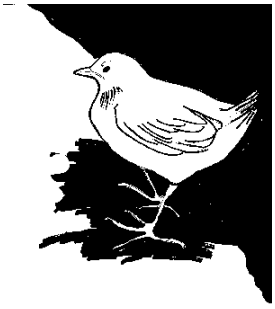
## Birds and Habitat

The site regularly supports an assemblage of species associated with riparian forest, including Willow Flycatcher, Warbling Vireo, Red-eyed Vireo, Cedar Waxwing, American Dipper, and Bullock's Oriole. This corridor, one of the largest remaining areas of unbroken riparian forest in western Washington, stretches along 16 kilometers of the lower river, and is representative of the large floodplain deciduous forests that were once found throughout the Pacific Northwest.

The site provides habitat for a great diversity of breeding and migrant landbirds. Over 100 species have been recorded, including several breeding neotropical migrants with small or decreasing populations in western Washington, e.g., Olive-sided Flycatcher, Red-eyed Vireo, and Bullock's Oriole. The first confirmed breeding of the Red-eyed Vireo on the Olympic Peninsula occurred on this site.

## Conservation Issues

Rapid suburban residential development is the greatest threat. Subdivisions and rural homes have proliferated in the last decade, and development pressures are expected to continue. Encroachment by non-native plants has degraded the quality of the riparian understory, and will continue to be a problem.



# Mima Prairie

46° 52′ N, 123° 03′ W 49 m/591 ha

| | |
|---|---|
| **Ownership** | State, county |
| **IBA Criteria** | 3 |
| **Habitats** | Grassland, coniferous forest, forested wetland, oak woodland |
| **Land Use** | Habitat conservation, scientific research |

## Site Description

Mima Prairie comprises two of the best remaining parcels of the native Puget Trough oak-fescue prairie. Located about 16 kilometers south of Olympia and five kilometers west of Interstate 5, this IBA includes the Mima Mounds State Natural Area Preserve, and the Glacial Heritage Preserve, a Thurston County park. The prairie, created by glacial outwash, climate change, and aboriginal burning, is dominated by Idaho fescue, Oregon white oak, and Oregon ash, with scattered Douglas-fir and lodgepole pine. Willow, snowberry, and hazelnut occur in wetter portions of the area. One side of the Glacial Heritage parcel is bounded by the Black River, and contains substantial riparian habitat. These sites are highly protected; public access and disturbance are restricted on 70 percent of the total area.

## Birds and Habitat

The Mima Prairie IBA contains high-quality native grassland and oak woodland. The two non-contiguous parcels support an assemblage of western Washington oak prairie birds, including Hutton's Vireo, Western Scrub Jay, Western Meadowlark, and Vesper Sparrow. Historically, the Streaked Horned

Lark occurred here, but that population has disappeared, apparently because of changes in land use. Black Hills Audubon Society has documented more than 110 bird species on the Glacial Heritage parcel. The site hosts significant populations of three species of prairie-dependent butterflies: great-spangled fritillary, valley checkerspot, and Whulge checkerspot, with the latter two listed by the Washington Department of Fish and Wildlife as threatened.

## Conservation Issues

The primary threats to this area are invasion by non-native plants, especially Scotch broom, and recreational overuse. Without frequent, low-intensity fire, there is a danger that the prairie habitat will succeed to coniferous forest. At present, recreational impacts are minimized through restricted access, but recreational development is permitted under the Thurston County's current management plan for the Glacial Heritage Preserve.

# Nisqually Delta

47° 05′ N, 122° 42′ W 0-10 m/1,625 ha

| | |
|---|---|
| **Ownership** | Federal, state, private |
| **IBA Criteria** | 2, 5a |
| **Habitats** | Estuarine, marsh, non-native grassland, riparian |
| **Land Use** | Wildlife conservation, recreation, fisheries |

## Site Description

Located at the mouths of the Nisqually River and McAllister Creek, 14 kilometers east of Olympia, this site includes Nisqually National Wildlife Refuge, Nisqually State Wildlife Area, and some private and tribal land. Ninety percent of the area is managed for wildlife conservation and wildlife-associated recreation. The site is primarily estuarine habitat, but fresh water marshes are maintained, with dikes, on about 20 percent of the area. The low-lying uplands are mostly non-native grassland, giving way to mature coniferous forest on steeper and higher ground. A broad strip of deciduous riparian habitat borders the Nisqually River.

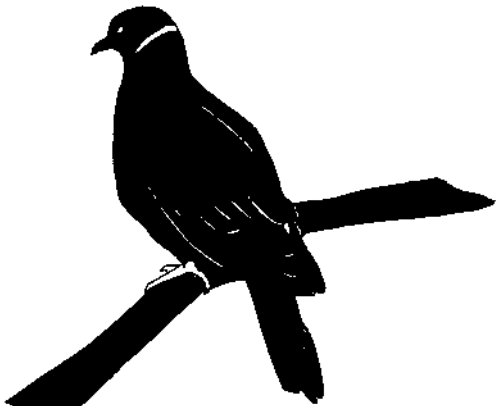
## Birds and Habitat

Nisqually Delta is one of the largest and least-disturbed estuaries remaining in Puget Sound. The diverse habitat, which contains 190 plant species, meets the needs of a wide range of resident and migratory birds, and provides wintering and migration habitat for significant numbers of waterfowl and shorebirds. Mineral springs in the area are considered essential for Band-tailed Pigeons.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| waterfowl | FM | 8,482 | 14,514 |
| Dunlin | W | 1,443 | 2,400 |
| Band-tailed Pigeon | B, FM | 76 | 138 |

## Conservation Issues

Nisqually National Wildlife Refuge is currently drafting a 15-year Comprehensive Conservation Plan, which includes possible restoration of up to 300 hectares of the diked area. The most serious threat to the delta is water pollution, caused by agricultural practices on adjacent land, and by runoff from nearby urban development. Invasion by non-native plants is also a concern. Although recreational use is high, it is carefully managed to minimize disturbance to birds in the refuge.



WESTERN LOWLANDS

# Penn Cove

48° 14′ N, 122° 44′ W 0 m/1,360 ha

| | |
|---|---|
| **Ownership** | County, city, private, federal |
| **IBA Criteria** | 2, 3, 5f |
| **Habitats** | Marine, estuarine, rocky shore |
| **Land Uses** | Recreation, low-density residential |

## Site Description

Penn Cove is a sheltered, shallow bay on the east side of Whidbey Island, consisting primarily of marine waters and tidelands, tidal mudflats, and some estuarine habitat. The 19-kilometer shoreline includes sand and gravel beaches, rocky shore, and bluffs. Some of the beaches are spawning areas for surf smelt and sand lance.

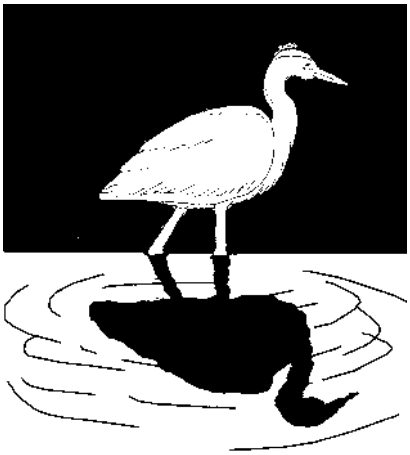
## Birds and Habitat

Penn Cove includes eight subtidal aquatic beds, including eelgrass, and supports a rich population of benthic invertebrates, including extensive mussel beds and numerous clam species. The cove's main importance is as a winter foraging area for aquatic birds. The site supports an assemblage of species associated with marine foraging areas, including 26 species of ducks, loons, and grebes. The area is used by wintering Black Turnstones, feeding and resting Surfbirds, Peregrine Falcons, Merlins, nesting Bald Eagles, and nesting Great Blue Herons. In some years, Black Turnstone counts have been the highest of all the U.S. Christmas bird counts.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Western Grebe | W | 200 | 2,000 |
| Surfbird | W | 50 | 50 |
| Black Turnstone | W | 150 | 150 |

## Conservation Issues

Although Penn Cove is not actively managed for wildlife, wildlife populations are relatively secure at present. Because the cove is long and narrow, it flushes slowly, which makes it particularly vulnerable to water pollution. Increased recreational use has the potential to harm the water quality or disturb the birds. Increased boat traffic and excessive hunting could disturb resting or feeding birds.



WESTERN LOWLANDS

# Point No Point

47° 54′ N, 122° 31′ W 0-55 m/650 ha

| | |
|---|---|
| **Ownership** | State, county |
| **IBA Criteria** | 1, 5b, 5g |
| **Habitats** | Marine, coniferous forest, forested wetland |
| **Land Use** | Recreation, sport fishing |

## Site Description

Point No Point is located at the northeast tip of the Kitsap Peninsula just east of the town of Hansville, and includes Point No Point County Park, the shoreline from Skunk Bay to Pilot Point, and the adjacent marine waters. Primary habitats are sandy and gravel shoreline, and marine foraging areas. The uplands support mature second-growth Douglas-fir.

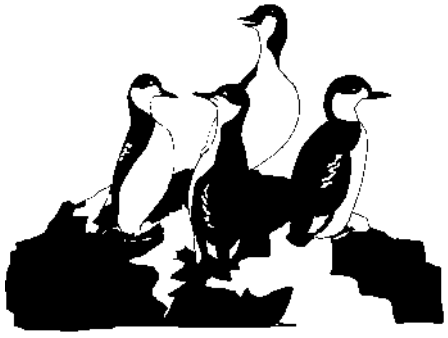
## Birds and Habitat

The marine waters off Point No Point are primarily valuable as a foraging area for marine birds, and as a wintering site for thousands of Bonaparte's Gulls. The currents of Admiralty Inlet create rip tides that churn the waters of Puget Sound, bringing plankton and small invertebrates to the surface. This, in turn, attracts high concentrations of Pacific sand lance and Pacific herring, which provide food for significant numbers of marine birds and are particularly important to the threatened Marbled Murrelet. Because of their proximity to Whidbey Island, the point and its surrounding uplands act as a spring migration funnel for landbirds, with more than 230 species recorded in the area.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Brant SM | 150 | -- | |
| Bonaparte's Gull | FM/W | 5,000 | 6,000 |
| Common Tern | FM | 100 | 1,000 |
| Common Murre | W | 150 | 1,000 |
| Marbled Murrelet | W | 60 | 650 |
| Ancient Murrelet | W | 45 | 460 |
| Rhinoceros Auklet | B | 150 | 650 |

## Conservation Issues

Because the primary value of this IBA stems from the marine habitat, the site is relatively secure. Water pollution is the most serious threat. The foraging areas are in the busiest shipping lanes in the Puget Sound region, and could suffer detrimental impacts if fuel or chemicals leaked from ships. In recent decades, the fishery resources of Puget Sound have been in serious decline, and loss of high fish populations could impair the value of this site for birds.



# Port Susan Bay

48° 13′ N, 122° 23′ W 0-12 m/3,540 ha

| | |
|---|---|
| **Ownership** | Private, state, city |
| **IBA Criteria** | 1, 5a, 5c |
| **Habitats** | Estuarine, agricultural, salt marsh, riparian |
| **Land Use** | Agriculture, wildlife conservation, residential |

## Site Description

Located in northwest Snohomish County, this IBA comprises the northeast portion of Port Susan Bay, the mudflats of Livingston Bay, the Stillaguamish River Delta, and the surrounding farm fields. The extensive intertidal area consists of shallow water, with a shoreline characterized by tidally influenced mudflats and sloughs. The adjoining agricultural fields are flat and diked, and are well known feeding areas for Snow Geese and swans. Most of the upland area is privately owned, and is not accessible to the public, but a portion of it is in state ownership and is managed for hunting and wildlife-oriented recreation by WDFW.

## Birds and Habitat

This area contains extensive estuaries and tidal mudflats, providing critical habitat for large numbers of shorebirds, mostly Western Sandpipers and Dunlin, both in winter and during spring and fall migrations. It is one of only four sites in Puget Sound that regularly supports more than 20,000 shorebirds in a season. Large flocks of wintering ducks, primarily Northern Pintail, Mallard, American Wigeon and Green-winged Teal, use the estuarine sloughs and sheltered shallow waters. In winter, Trumpeter and Tundra Swans and large numbers of Snow

Geese forage along the shoreline and also in the farm fields of the floodplain. Many raptor species frequent the tidal areas, marshy grasslands, and farm fields; up to 16 species have been recorded on this site. The hedgerows and fields of this area provide important wintering habitat for sparrows.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Trumpeter Swan | W | 51 | 139 |
| Snow Goose | W | 9,700 | 25,000 |
| ducks | W | 4,040 | 6,864 |
| Bald Eagle | W | 4 | 10 |
| Merlin | W | 1 | 3 |
| Peregrine Falcon | W | 1 | 2 |
| shorebirds | FM | -- | 50,000 |
| shorebirds | W | 24,175 | 31,050 |
| shorebirds | SM | 34,350 | 50,000 |

## Conservation Issues

Port Susan Bay is in one of the fastest-growing counties in Washington. As development spreads northward from the Everett metropolitan area, the lands adjacent to Port Susan may be converted to residential and commercial uses. Already, portions of the shoreline are inaccessible to the public. Because some of the area is diked, there is potential for agricultural conversion. The public hunting area is monitored by WDFW to avoid overhunting, but disturbance to birds could result from hunting, or from recreational activity along the shoreline.

# Protection Island

48° 08′ N, 122° 55′ W 0-25 m/275 ha

| | |
|---|---|
| **Ownership** | Federal, state |
| **IBA Criteria** | 5b, 5f |
| **Habitats** | Grassland, sandy bluffs and beach, open marine water |
| **Land Use** | Wildlife conservation |

## Site Description

Located at the entrance to Discovery Bay in the Strait of Juan de Fuca, this 147-hectare island is covered by grass and low brush, and has high sandy bluffs and low sand spits on both ends of the island. The site includes Protection Island National Wildlife Refuge, the Zella M. Schultz Seabird Sanctuary, and a 200-meter wide buffer zone surrounding the island. Public access is prohibited, affording a disturbance-free environment for nesting cormorants, gulls, and seabirds.

## Birds and Habitat

Protection Island is the single most important nesting area for seabirds in Puget Sound. Approximately 70 percent of the nesting seabird population of Puget Sound and the Strait of Juan de Fuca nest on the island, which supports one of the largest breeding populations of Rhinoceros Auklets in the world, and the largest nesting colony of Glaucous-winged Gulls in Washington. The island contains the last nesting population of Tufted Puffins in the Strait of Juan de Fuca and the Puget Sound region, and supports significant breeding populations of cormorants and Pigeon Guillemots.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Double-crested Cormorant | B | 200 pairs | 300 pairs |
| Pelagic Cormorant | B | 400 pairs | -- |
| Glaucous-winged Gull | B | 5,500 pairs | -- |
| Pigeon Guillemot | B | 900 pairs | -- |
| Rhinoceros Auklet | B | 17,000 pairs | -- |
| Tufted Puffin | B | 5 pairs | -- |

## Conservation Issues

Because the entire site is publicly owned and managed as a wildlife refuge, the habitat is secure. The most serious threat is disturbance from recreational boating and illegal landings on the island. The island is adjacent to busy shipping lanes, so the threat of oil spills and other contamination from commercial shipping is a concern.

WESTERN LOWLANDS

# Quartermaster Harbor

47° 23′ N, 122° 28′ W 0 m/1,420 ha

| | |
|---|---|
| **Ownership** | State, private |
| **IBA Criteria** | 3, 5f |
| **Habitats** | Marine, estuarine |
| **Land Use** | Recreation, fisheries |

## Site Description

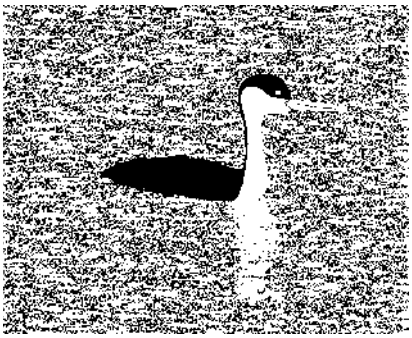
Located between Vashon and Maury Islands in south Puget Sound, Quartermaster Harbor is a long, narrow harbor less than 10 meters deep, and has a mud and sand bottom. The area is sheltered and relatively disturbance-free, because of its remoteness from commercial marine traffic. The portion of the harbor below the low-tide line is in state ownership and was recently declared a State Aquatic Reserve by the Department of Natural Resources.

## Birds and Habitat

Annually, Quartermaster Harbor supports approximately eight percent of Washington's wintering population of Western Grebes. It provides large concentrations of forage fish for an assemblage of wintering birds, and abundant shellfish for wintering sea ducks. The Quartermaster Harbor Pacific herring stock is the largest spawning population in south Puget Sound, and the third largest in the entire region. The harbor is also a major spawning area for surf smelt. Together, these two fish species form an essential component of the food chain for aquatic birds. About 35 species of aquatic birds—about 3,000 individuals annually—use this site as a wintering area.

## Conservation Issues

Water quality is the dominant conservation issue. Pollution from faulty septic systems, agricultural runoff, and drainage from residential areas can reduce the spawning success of Pacific herring and surf smelt. Some areas on the islands surrounding Quartermaster Harbor have high concentrations of heavy metals in the soil. There is concern that disturbance of these soils by mining, and the subsequent runoff, could detrimentally impact spawning areas adjacent to Quartermaster Harbor and ultimately reduce fish populations throughout the South Sound.



# Reed Island/Steigerwald Lake

45° 33′ N, 122° 19′ W 10 m/850 ha

| | |
|---|---|
| **Ownership** | Federal, state, private |
| **IBA Criteria** | 5a, 5d |
| **Habitats** | Riparian forest, upland field, open fresh water, marsh |
| **Land Use** | Wildlife conservation, recreation |

## Site Description

Located five kilometers southeast of Washougal in Clark County, this site comprises Reed Island State Park, Steigerwald Lake National Wildlife Refuge, and the lands surrounding the refuge south of State Route 14. Reed Island lies in the Columbia River channel, and is covered with a remnant of the lower Columbia River cottonwood forest dominated by black cottonwood, willow, and elderberry. The outer beaches are used for recreation, primarily camping and boating, but the interior of the island is relatively undisturbed. Steigerwald Lake National Wildlife Refuge on the Columbia River floodplain is a mix of developed pastures with a small component of native grasses, small wetlands, and scattered patches of cottonwoods and associated understory shrubs.

## Birds and Habitat

Reed Island hosts an active and growing Great Blue Heron nesting colony that currently contains about 180 nests. The heron population is probably a "source" population— i.e., it produces excess individuals, which disperse and colonize new heronries elsewhere. The ponds and marshes at Steigerwald support an average of 3,500 wintering waterfowl, and provide a rich foraging area for the herons breeding on Reed Island. This area also serves as a staging area for

migrants, particularly Ring-billed and California Gulls, as they gather to travel through the Columbia Gorge to their nesting range east of the Cascades. Over 185 species have been recorded here, including one of the state's largest breeding populations of Purple Martins.

## Conservation Issues

At present, the site is relatively secure. Despite the intensive use of Reed Island's beaches for recreation, the heronry receives little disturbance because it is in dense forest at the center of the island. Recreational use of the island is increasing, and the potential for disturbance and nest abandonment is a cause for concern. Steigerwald Lake NWR was established to provide partial mitigation for wildlife habitat lost during the construction of a second powerhouse at Bonneville Dam. Current management emphasis is directed toward restoration and enhancement of historic wetlands; restoration of Columbia River riparian habitat; and providing winter forage for geese through haying and grazing of uplands. The refuge was only recently opened to public access, so the potential for detrimental impacts from recreational use is not known at this time.

# Ridgefield National Wildlife Refuge

45° 49′ N, 122° 46′ W 6 m/2,085 ha

| | |
|---|---|
| **Ownership** | Federal |
| **IBA Criteria** | 1, 3, 5a, 5d |
| **Habitats** | Marsh, riparian, deciduous forest |
| **Land Use** | Wildlife conservation, recreation, agriculture |

## Site Description

Located one kilometer south of the confluence of the Lewis and Columbia Rivers, Ridgefield National Wildlife Refuge contains over 2,000 hectares of wetland, grassland and woodland of the Columbia River floodplain. Most of the refuge land is protected by dikes, with water levels managed to provide habitat for wintering waterfowl. An abundance of fresh water wetlands has been created, interspersed with riparian and Oregon white oak woodlands, croplands, and grazing lands. A regulated hunting season is permitted in some management units. The refuge is adjacent to the Vancouver Lake Lowlands IBA just upstream.

## Birds and Habitat

Much of the refuge is open fresh water marsh, grassland, and agricultural area. Large mixed woodlands in upland areas are interspersed with riparian edges dominated by willows, Oregon ash, and cottonwoods. A small portion of the refuge includes coniferous woodlands.

The refuge is valuable primarily as a wintering and migration staging area for waterfowl, and also provides habitat for many other birds. It is a wintering area for the Aleutian Canada Goose, a federally threatened subspecies; and two percent of the global population of Dusky Canada Geese winters here. Ridgefield and the surrounding area supports Washington's only wintering population of

Sandhill Cranes, and supports a large concentration of wintering Bald Eagles. The refuge is important for a variety of wetland-associated songbirds; and the oak woodlands provide habitat for an assemblage of species rare in western Washington, including Scrub Jay, House Wren, and the Slender-billed White-breasted Nuthatch, a candidate for listing as a threatened subspecies. A MAPS banding station, which has recorded one of the highest counts of birds banded in North America, has been in operation on the refuge for seven years.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Great Blue Heron | B | 500 pairs | -- |
| Great Egret | FM | -- | 100 |
| Tundra Swan | W | 1,000 | -- |
| Dusky Canada Goose | W | 359 | -- |
| Geese | W | -- | 45,000 |
| Ducks | W | -- | 20,000 |
| Bald Eagle | W | 12 | 20 |
| Sandhill Crane | W | 500 | -- |
| Sandhill Crane | FM | -- | 1,700 |
| Purple Martin | B | 15 pairs | -- |

## Conservation Issues

A variety of invasive non-native plants are present, including Scotch broom, Himalayan blackberry, teasel, and purple loosestrife. Reed canarygrass is a persistent nuisance in moist soils on the refuge. Grasslands have many other noxious weeds, and water milfoil is present in some refuge lakes. An underground plume of chemical waste from the former Pacific Wood Treating plant may be entering some of the management units and threatening to contaminate water and soils.

# Totten Inlet

47° 09′ N, 123° 00′ W 0 m/2,570 ha

| | |
|---|---|
| **Ownership** | State, private |
| **IBA Criteria** | 5a, 5c |
| **Habitats** | Marine, estuarine, marsh, coniferous forest |
| **Land Use** | Aquaculture, fisheries, recreation, habitat conservation |

## Site Description

Totten Inlet; its secondary fork, Little Skookum inlet; and the Kennedy Creek estuary lie at the southwest end of Puget Sound, 14 kilometers northwest of Olympia. These marine, estuarine, and salt marsh habitats include approximately 56 kilometers of shoreline. The inlet also contains moderate-sized mudflats and an intertidal marsh within a Douglas-fir forest. The intertidal marshes of the Kennedy Creek estuary are managed by the state as biologically significant coastal wetlands. The IBA contains two Natural Area Preserves comprising 52 hectares.

## Birds and Habitat

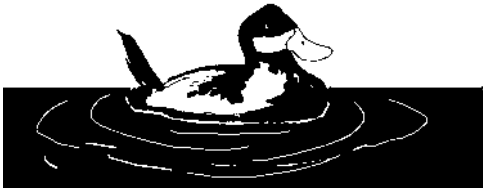
Totten Inlet, one of the most significant shorebird habitats in the inland marine waters of Washington, supports the largest estuarine flocks of shorebirds in south and central Puget Sound in fall, winter, and spring. Dominant species are Western Sandpiper and Dunlin. The open waters support relatively high populations of scaup, scoter, Common Goldeneye, Bufflehead, and Ruddy Duck. Although the Kennedy Creek estuary is relatively small, it ranks high in importance to shorebirds within the entire Puget Sound region. The high-quality salt

marshes and mudflats contain an exceptional biomass of invertebrates, which provides essential foraging habitat for migratory and wintering birds.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| waterfowl | W | 3,480 | 5,214 |
| shorebirds | W | 3,071 | 4,679 |
| shorebirds | SM | 6,784 | 11,991 |
| shorebirds | FM | 874 | 1,572 |

## Conservation Issues

Illegal dumping of garbage on roadways adjacent to the site threatens water quality, and the marine invertebrates that are a critical food source for birds. Disturbance from recreational and commercial use has detrimental impacts on waterfowl. Aquaculture companies deliberately harass scoters to deter the birds' foraging in and around commercial shellfish beds. Runoff from upland residential and commercial development is a potential source of water contamination.



# Vancouver Lake Lowlands

45° 41′ N, 122° 45′ W 7 m/2,170 ha

| | |
|---|---|
| **Ownership** | Private, port, multiple public |
| **IBA Criteria** | 1, 5a, 5b |
| **Habitats** | Open fresh water, marsh, grassland, coniferous forest |
| **Land Use** | Recreation, agriculture, industrial |

## Site Description

The Vancouver Lake Lowlands, located nine kilometers downstream of the city of Vancouver in Clark County, lie on a former Columbia River floodplain that is now diked, but includes many ponds and sloughs, and the 1,157-hectare Vancouver Lake. Two county parks, a state wildlife recreation area, and part of Ridgefield National Wildlife Refuge comprise about 40 percent of the area. The remainder is private agricultural land or port district land, zoned for industrial development.

## Birds and Habitat

The Vancouver Lake Lowlands are a major wintering area for waterfowl, with as many as 200,000 waterfowl recorded here at one time. In an average year, more than 60,000 geese winter here; the site is particularly important to Dusky Canada Geese. The IBA also supports two Great Blue Heron nesting colonies and two Bald Eagle nests. It is a spring migration staging area for several hundred Sandhill Cranes and a fall migration stop for shorebirds. An island in Vancouver Lake is an important winter roost for gulls.

| SPECIES OR GROUP | SEASON | AVERAGE | MAXIMUM |
|---|---|---|---|
| Canada Goose | W | 60,000 | -- |
| waterfowl | W | -- | 200,000 |
| Bald Eagle | B | 4 | 4 |
| Sandhill Crane | SM | -- | 200 |
| gulls | W | 5,000 | 10,000 |

## Conservation Issues

Industrial development on the port district's land may destroy some of the habitat value of the site, and may bring disturbances associated with industrial activity. Rapid urban development in the Vancouver area also threatens to encroach on the surrounding uplands.