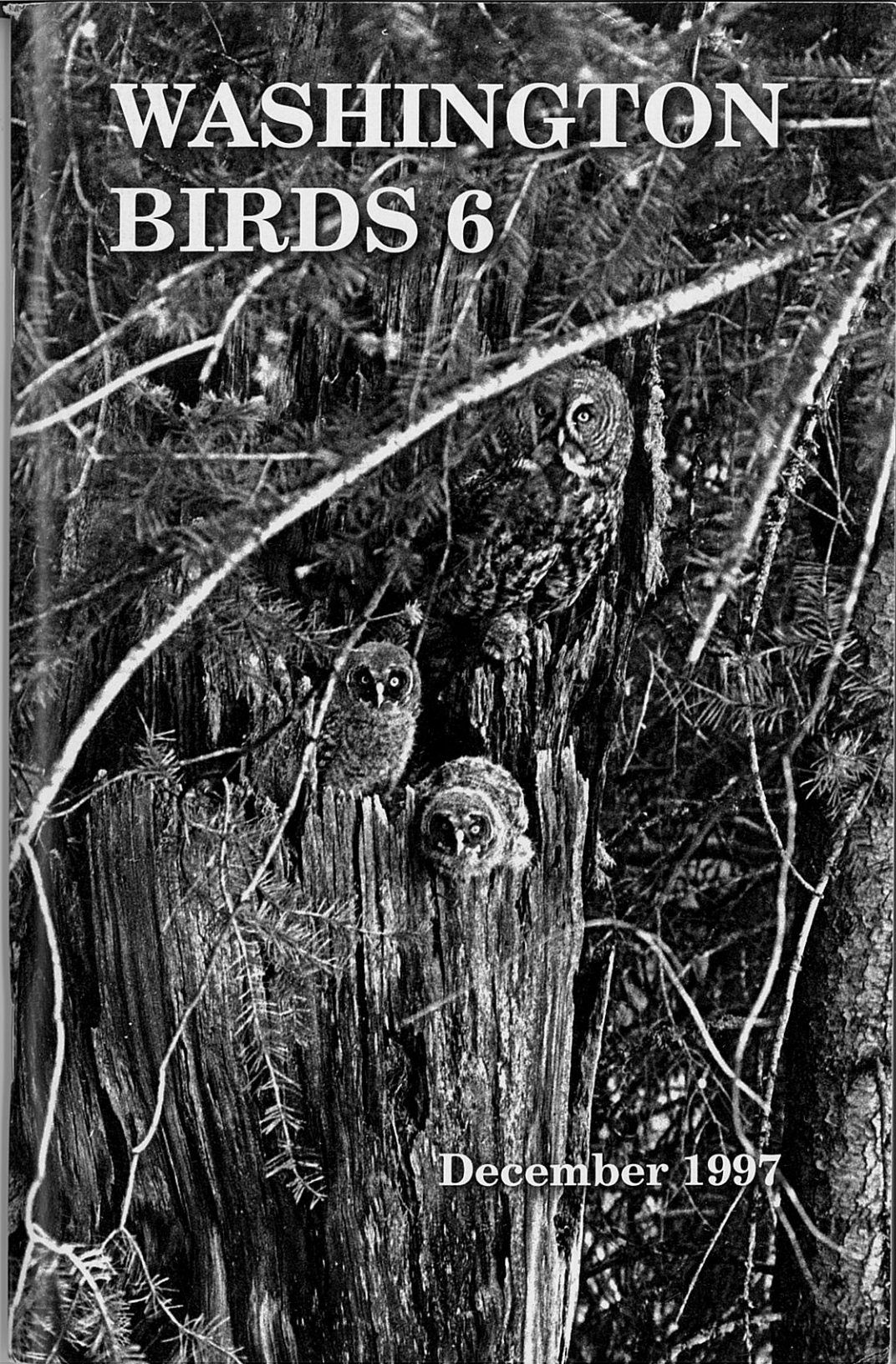


# WASHINGTON BIRDS 6



December 1997

## WASHINGTON BIRDS

*Journal of the Washington Ornithological Society*

### Editorial Board

Hal Opperman, Editor; Joseph B. Buchanan, Steven G. Herman, Philip W. Mattocks, Jr., Dennis R. Paulson, Bill Tweit, Terence R. Wahl

### Production Staff

Fred Bird, map design; Steve Dang, mailing; Charlotte Escott, scanning and digital imaging; Leighton Kurashima, digital imaging and cover design; Lisa MacQueen, copy editing; Russell Rogers, page layout and typography; The Downtown Printing Co., Seattle, printing and binding

### Information for Contributors

The purpose of *Washington Birds* is to publish information on birds of Washington state and the Pacific Northwest. Papers of general interest independent of geographic region will also be considered. Subject matter may include but is not limited to geographic and ecological distribution, seasonal status and migration, breeding biology and general natural history, conservation, identification, faunal lists, site guides, field techniques, and reports on current research. Conciseness is encouraged.

Contributors should send typed double-spaced manuscripts (preferably two copies) to the Editor at the address below. Submissions in computer-readable form are deeply appreciated. Consult issues of the journal for all matters of style. English and scientific names of North American birds should follow the most recent edition of the AOU *Check-list* and its supplements. Scientific names of vertebrates will be included for species featured in papers but not for those mentioned incidentally or in long species lists. English and scientific names of other animals and plants will be from current check-lists. Measurements should be in the metric system. Artwork should be camera-ready and of high quality. For photographic material, original negatives and transparencies are preferable to duplicates or prints and will be returned to the author upon publication.

Address all editorial correspondence to:

The Editor, *Washington Birds*  
Post Office Box 286  
Medina, Washington 98039-0286

## CHECK-LIST OF WASHINGTON BIRDS (FOURTH EDITION)

Washington Bird Records Committee  
c/o Philip W. Mattocks, Jr., Secretary  
915 East Third Avenue, Ellensburg, Washington 98926

The following lists supersede the third edition of the Washington Bird Records Committee's Check-list and Supplementary List (WBRC 1996). Except as noted below, all changes are accounted for by actions recorded in the WBRC Third Report, published elsewhere in the present issue. The Check-list consists of species the occurrence of which the Committee considers documented adequately by specimens, photographs, sound recordings, and written reports. The Supplementary List consists of species documented only by single-person sight records that the Committee considers valid. Species in italics have been recorded no more than 15 times in Washington. These constitute the Review List for which written descriptions, accompanied where possible by photographs and sound recordings, are required for all reports submitted for the Committee's consideration.

Taxonomy and nomenclature are those of the American Ornithologists' Union (AOU 1983 and supplements).

### SUMMARY OF CHANGES

The 1996 edition of the Check-list included 435 species with an additional 12 on the Supplementary List. This fourth edition has 442 species plus 12 on the Supplementary List, a net increase of seven species in both categories combined.

#### A. Species *added*, *deleted*, or *renamed* to conform to AOU actions:

Falcated Teal *renamed* Falcated Duck

Marbled Murrelet, split into Marbled Murrelet and Long-billed Murrelet [*added*], both of which occur in Washington

Solitary Vireo [*deleted*], split into Cassin's Vireo [*added*], Blue-headed Vireo, and Plumbeous Vireo, only the first of which occurs in Washington

#### B. Species *added* by action of WBRC:

Cook's Petrel

California Condor (Supplementary List)

Ross's Gull

Long-billed Murrelet

Fork-tailed Flycatcher

Yellow-throated Vireo

C. Species *reinstated* to Check-list by WBRC after having been provisionally withdrawn for further review:

Hoary Redpoll

D. Species *promoted* from Supplementary List to Check-list by action of WBRC:

Brown Thrasher

E. Species *reclassified* from Non-Review to Review status (15 or fewer valid records):

Xantus's Murrelet  
Acorn Woodpecker

### CHECK-LIST OF WASHINGTON BIRDS

GAVIIDAE	HYDROBATIDAE	<i>Yellow-crowned Night-Heron</i>
Red-throated Loon	<i>Wilson's Storm-Petrel</i>	
Pacific Loon	Fork-tailed Storm-Petrel	THRESKIORNITHIDAE
Common Loon	Leach's Storm-Petrel	White-faced Ibis
Yellow-billed Loon		
	PHAETHONTIDAE	CATHARTIDAE
PODICIPEDIDAE	<i>Red-billed Tropicbird</i>	Turkey Vulture
Pied-billed Grebe		
Horned Grebe	SULIDAE	ANATIDAE
Red-necked Grebe	<i>Blue-footed Booby</i>	<i>Fulvous Whistling-Duck</i>
Eared Grebe		Tundra Swan
Western Grebe	PELECANIDAE	Trumpeter Swan
Clark's Grebe	American White Pelican	Mute Swan
	Brown Pelican	Greater White-fronted Goose
DIOMEDEIDAE		Snow Goose
Black-footed Albatross	PHALACROCORACIDAE	Ross's Goose
Laysan Albatross	Double-crested Cormorant	Emperor Goose
<i>Short-tailed Albatross</i>	Brandt's Cormorant	Brant
<i>Shy Albatross</i>	Pelagic Cormorant	Canada Goose
		Wood Duck
PROCELLARIIDAE	FREGATIDAE	Green-winged Teal
Northern Fulmar	<i>Magnificent Frigatebird</i>	<i>Falcated Duck</i>
<i>Mottled Petrel</i>		American Black Duck
<i>Murphy's Petrel</i>	ARDEIDAE	Mallard
<i>Cook's Petrel</i>	American Bittern	Northern Pintail
Pink-footed Shearwater	Great Blue Heron	<i>Garganey</i>
Flesh-footed Shearwater	Great Egret	Blue-winged Teal
Buller's Shearwater	<i>Snowy Egret</i>	Cinnamon Teal
Sooty Shearwater	<i>Little Blue Heron</i>	Northern Shoveler
Short-tailed Shearwater	Cattle Egret	Gadwall
<i>Manx Shearwater</i>	Green Heron	Eurasian Wigeon
	Black-crowned Night-Heron	American Wigeon

Canvasback	Sage Grouse	Long-billed Curlew
Redhead	Spruce Grouse	<i>Hudsonian Godwit</i>
Ring-necked Duck	Blue Grouse	<i>Bar-tailed Godwit</i>
Tufted Duck	White-tailed Ptarmigan	Marbled Godwit
Greater Scaup	Sharp-tailed Grouse	Ruddy Turnstone
Lesser Scaup	Wild Turkey	Black Turnstone
<i>King Eider</i>		Surfbird
<i>Steller's Eider</i>	ODONTOPHORIDAE	Red Knot
Harlequin Duck	Northern Bobwhite	Sanderling
Oldsquaw	Scaled Quail	Semipalmated Sandpiper
Black Scoter	California Quail	Western Sandpiper
Surf Scoter	Mountain Quail	Least Sandpiper
White-winged Scoter		<i>White-rumped Sandpiper</i>
Common Goldeneye	RALLIDAE	Baird's Sandpiper
Barrow's Goldeneye	<i>Yellow Rail</i>	Pectoral Sandpiper
Bufflehead	Virginia Rail	Sharp-tailed Sandpiper
<i>Smew</i>	Sora	Rock Sandpiper
Hooded Merganser	American Coot	Dunlin
Common Merganser		<i>Curlew Sandpiper</i>
Red-breasted Merganser	GRUIDAE	Stilt Sandpiper
Ruddy Duck	Sandhill Crane	Buff-breasted Sandpiper
		Ruff
ACCIPITRIDAE	CHARADRIIDAE	Short-billed Dowitcher
Osprey	Black-bellied Plover	Long-billed Dowitcher
White-tailed Kite	Pacific Golden-Plover	Common Snipe
Bald Eagle	American Golden-Plover	Wilson's Phalarope
Northern Harrier	Snowy Plover	Red-necked Phalarope
Sharp-shinned Hawk	Semipalmated Plover	Red Phalarope
Cooper's Hawk	<i>Piping Plover</i>	
Northern Goshawk	Killdeer	LARIDAE
<i>Red-shouldered Hawk</i>	<i>Mountain Plover</i>	South Polar Skua
<i>Broad-winged Hawk</i>	<i>Eurasian Dotterel</i>	Pomarine Jaeger
Swainson's Hawk		Parasitic Jaeger
Red-tailed Hawk	HAEMATOPODIDAE	Long-tailed Jaeger
Ferruginous Hawk	Black Oystercatcher	<i>Laughing Gull</i>
Rough-legged Hawk		Franklin's Gull
Golden Eagle	RECURVIROSTRIDAE	Little Gull
	Black-necked Stilt	<i>Black-headed Gull</i>
FALCONIDAE	American Avocet	Bonaparte's Gull
American Kestrel		Heermann's Gull
Merlin	SCOLOPACIDAE	Mew Gull
Prairie Falcon	Greater Yellowlegs	Ring-billed Gull
Peregrine Falcon	Lesser Yellowlegs	California Gull
Gyr Falcon	Solitary Sandpiper	Herring Gull
	Willet	Thayer's Gull
PHASIANIDAE	Wandering Tattler	<i>Iceland Gull</i>
Gray Partridge	<i>Gray-tailed Tattler</i>	<i>Slaty-backed Gull</i>
Chukar	Spotted Sandpiper	Western Gull
Ring-necked Pheasant	<i>Upland Sandpiper</i>	Glaucous-winged Gull
Ruffed Grouse	Whimbrel	Glaucous Gull

Black-legged Kittiwake	<i>Great Gray Owl</i>	<i>Eastern Phoebe</i>
<i>Red-legged Kittiwake</i>	Long-eared Owl	Say's Phoebe
<i>Ross's Gull</i>	Short-eared Owl	<i>Vermilion Flycatcher</i>
Sabine's Gull	<i>Boreal Owl</i>	Ash-throated Flycatcher
Caspian Tern	Northern Saw-whet Owl	<i>Tropical Kingbird</i>
Elegant Tern		Western Kingbird
Common Tern	CAPRIMULGIDAE	Eastern Kingbird
Arctic Tern	Common Nighthawk	<i>Scissor-tailed Flycatcher</i>
Forster's Tern	Common Poorwill	<i>Fork-tailed Flycatcher</i>
<i>Least Tern</i>		
Black Tern	APODIDAE	LANIIDAE
	Black Swift	Northern Shrike
ALCIDAE	Vaux's Swift	Loggerhead Shrike
Common Murre	White-throated Swift	
<i>Thick-billed Murre</i>		VIREONIDAE
Pigeon Guillemot	TROCHILIDAE	Cassin's Vireo
Marbled Murrelet	Black-chinned Hummingbird	<i>Yellow-throated Vireo</i>
<i>Long-billed Murrelet</i>	Anna's Hummingbird	Hutton's Vireo
<i>Kittlitz's Murrelet</i>	Calliope Hummingbird	Warbling Vireo
<i>Xantus's Murrelet</i>	Rufous Hummingbird	Red-eyed Vireo
Ancient Murrelet	<i>Allen's Hummingbird</i>	
Cassin's Auklet		CORVIDAE
<i>Parakeet Auklet</i>	ALCEDINIDAE	Gray Jay
Rhinoceros Auklet	Belted Kingfisher	Steller's Jay
Tufted Puffin		Blue Jay
<i>Horned Puffin</i>	PICIDAE	Western Scrub-Jay
	Lewis's Woodpecker	<i>Pinyon Jay</i>
COLUMBIDAE	<i>Acorn Woodpecker</i>	Clark's Nutcracker
Rock Dove	<i>Yellow-bellied Sapsucker</i>	Black-billed Magpie
Band-tailed Pigeon	Red-naped Sapsucker	American Crow
<i>White-winged Dove</i>	Red-breasted Sapsucker	Northwestern Crow
Mourning Dove	Williamson's Sapsucker	Common Raven
	Downy Woodpecker	
CUCULIDAE	Hairy Woodpecker	ALAUDIDAE
<i>Black-billed Cuckoo</i>	White-headed Woodpecker	Sky Lark
<i>Yellow-billed Cuckoo</i>	Three-toed Woodpecker	Horned Lark
	Black-backed Woodpecker	
TYTONIDAE	Northern Flicker	HIRUNDINIDAE
Barn Owl	Pileated Woodpecker	Purple Martin
		Tree Swallow
STRIGIDAE	TYRANNIDAE	Violet-green Swallow
Flammulated Owl	Olive-sided Flycatcher	Northern Rough-winged Swallow
Western Screech-Owl	Western Wood-Pewee	Bank Swallow
Great Horned Owl	Willow Flycatcher	Barn Swallow
Snowy Owl	Least Flycatcher	Cliff Swallow
<i>Northern Hawk Owl</i>	Hammond's Flycatcher	
Northern Pygmy-Owl	Dusky Flycatcher	PARIDAE
Burrowing Owl	Gray Flycatcher	Black-capped Chickadee
Spotted Owl	Pacific-slope Flycatcher	Mountain Chickadee
Barred Owl	<i>Black Phoebe</i>	Chestnut-backed Chickadee

Boreal Chickadee	PRUNELLIDAE	Chipping Sparrow
	<i>Siberian Accentor</i>	<i>Clay-colored Sparrow</i>
AEGITHALIDAE		Brewer's Sparrow
Bushtit	MOTACILLIDAE	Vesper Sparrow
	<i>Yellow Wagtail</i>	Lark Sparrow
SITTIDAE	<i>White Wagtail</i>	Black-throated Sparrow
Red-breasted Nuthatch	<i>Black-backed Wagtail</i>	Sage Sparrow
White-breasted Nuthatch	<i>Red-throated Pipit</i>	<i>Lark Bunting</i>
Pygmy Nuthatch	American Pipit	Savannah Sparrow
		Grasshopper Sparrow
CERTHIIDAE	BOMBYCILLIDAE	<i>Le Conte's Sparrow</i>
Brown Creeper	Bohemian Waxwing	<i>Nelson's Sharp-tailed Sparrow</i>
	Cedar Waxwing	Fox Sparrow
TROGLODYTIDAE		Song Sparrow
Rock Wren	PARULIDAE	Lincoln's Sparrow
Canyon Wren	<i>Blue-winged Warbler</i>	Swamp Sparrow
Bewick's Wren	<i>Tennessee Warbler</i>	White-throated Sparrow
House Wren	Orange-crowned Warbler	Harris's Sparrow
Winter Wren	Nashville Warbler	White-crowned Sparrow
Marsh Wren	<i>Northern Parula</i>	Golden-crowned Sparrow
	Yellow Warbler	Dark-eyed Junco
CINCLIDAE	<i>Chestnut-sided Warbler</i>	Lapland Longspur
American Dipper	<i>Magnolia Warbler</i>	<i>Chestnut-collared Longspur</i>
	<i>Cape May Warbler</i>	<i>Rustic Bunting</i>
REGULIDAE	<i>Black-throated Blue Warbler</i>	Snow Bunting
Golden-crowned Kinglet	Yellow-rumped Warbler	<i>McKay's Bunting</i>
Ruby-crowned Kinglet	Black-throated Gray Warbler	
	Townsend's Warbler	CARDINALIDAE
SYLVIIDAE	Hermit Warbler	<i>Rose-breasted Grosbeak</i>
<i>Blue-gray Gnatcatcher</i>	<i>Blackburnian Warbler</i>	Black-headed Grosbeak
	Palm Warbler	Lazuli Bunting
TURDIDAE	<i>Blackpoll Warbler</i>	<i>Indigo Bunting</i>
Western Bluebird	<i>Black-and-white Warbler</i>	<i>Dickcissel</i>
Mountain Bluebird	American Redstart	
Townsend's Solitaire	<i>Prothonotary Warbler</i>	ICTERIDAE
Veery	<i>Ovenbird</i>	Bobolink
<i>Gray-cheeked Thrush</i>	Northern Waterthrush	Red-winged Blackbird
Swainson's Thrush	MacGillivray's Warbler	Western Meadowlark
Hermit Thrush	Common Yellowthroat	Yellow-headed Blackbird
American Robin	<i>Hooded Warbler</i>	<i>Rusty Blackbird</i>
Varied Thrush	Wilson's Warbler	Brewer's Blackbird
	Yellow-breasted Chat	<i>Common Grackle</i>
MIMIDAE		<i>Great-tailed Grackle</i>
Gray Catbird	THRAUPIDAE	Brown-headed Cowbird
Northern Mockingbird	Western Tanager	<i>Orchard Oriole</i>
Sage Thrasher		<i>Hooded Oriole</i>
<i>Brown Thrasher</i>	EMBERIZIDAE	<i>Baltimore Oriole</i>
	Green-tailed Towhee	Bullock's Oriole
STURNIDAE	Spotted Towhee	<i>Scott's Oriole</i>
European Starling	American Tree Sparrow	

FRINGILLIDAE	House Finch	Lesser Goldfinch
<i>Brambling</i>	Red Crossbill	American Goldfinch
Gray-crowned Rosy-Finch	White-winged Crossbill	Evening Grosbeak
Pine Grosbeak	Common Redpoll	
Purple Finch	<i>Hoary Redpoll</i>	PASSERIDAE
Cassin's Finch	Pine Siskin	House Sparrow

## SUPPLEMENTARY LIST

<i>California Condor</i>	<i>Ivory Gull</i>	<i>Phainopepla</i>
<i>Bristle-thighed Curlew</i>	<i>Ruby-throated Hummingbird</i>	<i>Black-throated Green Warbler</i>
<i>Great Knot</i>	<i>White-eyed Vireo</i>	<i>Prairie Warbler</i>
<i>Jack Snipe</i>	<i>Philadelphia Vireo</i>	<i>Kentucky Warbler</i>

## LITERATURE CITED

- AOU. 1983. Check-list of North American birds, 6th ed. American Ornithologists' Union, Lawrence, Kansas. Supplements in *Auk* 1985 (102:680-686), 1987 (104:591-596), 1989 (106:532-538), 1991 (108:750-754), 1993 (110:675-682), 1995 (112:819-830), 1997 (114:542-552).
- WBRC. 1996. Check-list of Washington birds (3rd ed.). *Washington Birds* 5:1-6.

*Manuscript received 13 December 1997*

### THIRD REPORT OF THE WASHINGTON BIRD RECORDS COMMITTEE

Kevin Aanerud

8237 21st Avenue Northeast, Seattle, Washington 98115

Philip W. Mattocks, Jr.

915 East Third Avenue, Ellensburg, Washington 98926

The Washington Bird Records Committee (WBRC) has met three times—on 30 September 1995, 6 April 1996, and 9 November 1996—since the deliberations reflected in its Second Report (Tweit and Skriletz 1996). During these meetings the Committee examined 128 reports of 61 review species. Ninety-seven records of 49 species were accepted, and 31 reports of 21 species were rejected, for an acceptance rate of 76 percent. A preliminary, unofficial summary of these deliberations, published earlier (Mattocks and Aanerud 1997), is superseded by the present definitive report, which corrects it. Notably, the summary itemizes numerous reports that refer to species not on the Review List. These were discussed “off the record” and should be ignored, as we have done here.

Several changes to the state Check-list result from Committee decisions reported here, and several others arise from decisions by the Committee on Taxonomy and Nomenclature of the American Ornithologists' Union (see the revised Check-list of Washington Birds elsewhere in this issue).

The Committee is nearing completion of the review process for all old (pre-1989) reports. Part of that process has included the examination of the specimen record of Washington's rare birds. As these specimens are stored in various museums, including the United States National Museum in Washington, D.C., it has been impracticable for the Committee to view all of them directly. Instead, the Committee has chosen to rely on photographs. As often as possible, tagging labels with pertinent information were made visible in the photographs, and specimens were arranged for optimum views of identifying features. These photographs are on file at the Slater Museum of Natural History, University of Puget Sound, Tacoma, Washington, along with all other Committee archival materials. This report documents 20 specimens that were reviewed by the Committee in this manner.

The Committee remains unable to evaluate a large number of sightings of review species due to the near-total absence of written reports or other evidence. A list of those from the period 1960-1996 and an appeal for information about them were published recently in *WOSNews* 50:6, 1997.

The Review List for Washington includes those species whose names are italicized on the Check-list, as well as all species not yet recorded

from the state, and is very little changed from the previous edition. Xantus's Murrelet has been added, as relatively few documented reports of this species are known to the Committee. Acorn Woodpecker has also been added. Even though this species has nested erratically in Washington in the last decade, it is not certain that a stable population is present from year to year. The criterion for inclusion on the Review List remains that of 15 or fewer state records prior to 1989 (Tweit and Paulson 1994). However, it is expected that a new set of criteria will be developed in forthcoming Committee meetings and published in the near future.

## EVALUATION PROCEDURES

Procedures have remained consistent with those detailed in the introduction of the first report of the WBRC (Tweit and Paulson 1994). Although photographs are considered among the most persuasive forms of documenting evidence, the Committee strongly prefers a written report in companionship with any submitted photographs. There have been cases in which a photo was not sufficient documentation, resulting in a rejected report. Submitted evidence is considered a "report." A "record" is a report that has been accepted by the Committee.

## THE RECORDS

The taxonomy and nomenclature employed in this report are those of the American Ornithologists' Union (AOU 1983 and supplements). The species reports are listed in taxonomic order, and multiple reports of a single species are listed chronologically. Information provided for each report generally includes the number of individuals (in many cases, with a description of age, sex, or plumage), location and date span for the report, initials of observers who have submitted documenting evidence, and the file number (in parentheses) for the report. Observers' initials are not listed for rejected reports. If any observers submitted photographic or video evidence, their initials are preceded by a (+) sign. All documenting materials as well as any written comments provided by Committee members or consultants are conserved at the Slater Museum. Any commentary following this sequence of information is the opinion of the authors of this report, not of the Committee. In particular, the Committee does not make determinations of sex, age, or subspecies.

## COMMITTEE MEMBERS

The members of the Committee who voted on reports included herein were: Kevin Aanerud, T. Ben Feltner (Chairman), Eugene S. Hunn (through the April 1996 meeting), Philip W. Mattocks, Jr. (Secretary), Dennis R. Paulson, Jeff Skriletz, Andy Stepniewski (November 1996 meeting), Robert A. Sundstrom, and Bill Tweit.

## ABBREVIATIONS

# specimen; + photograph or videotape submitted

Museums: PSM (Slater Museum, University of Puget Sound, Tacoma); USNM (United States National Museum, Washington, D.C.); WSU (Conner Museum, Washington State University, Pullman)

Counties: Asotin (AS), Benton (BE), Chelan (CH), Clallam (CL), Clark (CK), Columbia (CB), Cowlitz (CO), Douglas (DO), Franklin (FR), Grant (GT), Grays Harbor (GH), Island (IS), King (KG), Kitsap (KP), Kittitas (KT), Klickitat (KL), Lincoln (LI), Okanogan (OK), Pacific (PA), Pend Oreille (PO), Pierce (PI), Skagit (SG), Skamania (SM), Snohomish (SN), Spokane (SP), Thurston (TH), Walla Walla (WW), Whatcom (WC), Whitman (WN), Yakima (YA)

Journals: AB=*American Birds*; AFN=*Audubon Field Notes*; C=*Condor*; M=*Murrelet*; NASFN=*National Audubon Society Field Notes*; WN=*WOSNEWS*, *WOSNews* (Washington Ornithological Society Newsletter)

## ACCEPTED RECORDS

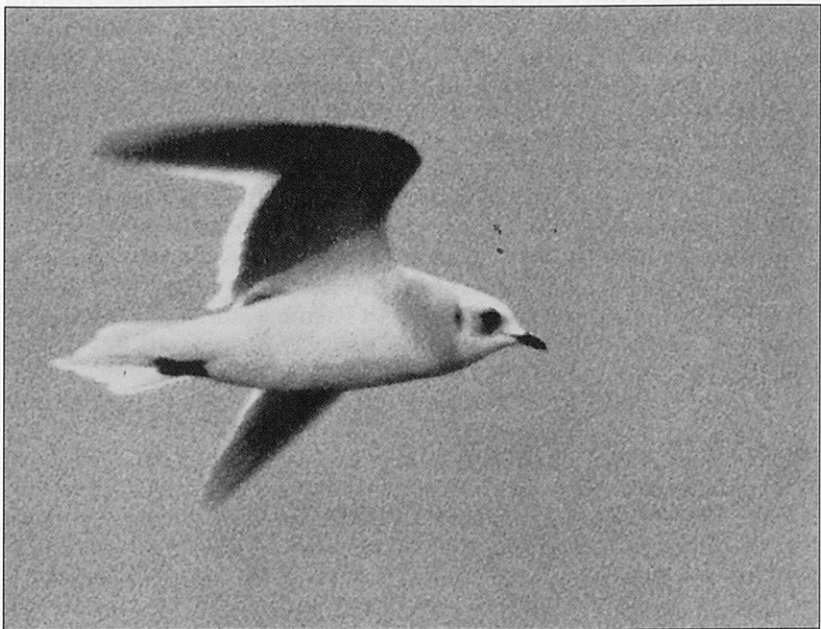
**SHORT-TAILED ALBATROSS.** An adult was collected (USNM #234889) off Fort Canby, PA on 14 Apr 1883 (STAL-1883-1). An immature bird was collected (USNM #117696) 80 miles off Cape Flattery, CL in June 1889 (STAL-1889-1). Another immature, an old specimen (USNM #40066) from Neah Bay, CL (STAL-000-1), was collected without a date indicated. The Committee reviewed photographs of these specimens because it was interested in documenting the physical evidence supporting the occurrence of this species in Washington before its serious decline.

**SHY ALBATROSS.** An adult female was photographed and collected (USNM #420017) 39 miles west of Quillayute, CL on 1 Sep 1951 (SHAL-51-1). This was the only record in North Pacific waters until a bird was recently discovered 30 miles off Lane County, Oregon, in the fall of 1996 (NASFN 51:108).

**MURPHY'S PETREL.** Two were photographed on a pelagic trip off Westport, GH on 31 Aug 1995, TWa, +JMc, +JBU (MUPE-95-1). This is the first Washington record for this species in the fall. The vast majority of nearshore eastern Pacific records are in the spring (Mlodinow and O'Brien 1996). The California Bird Records Committee no longer reviews reports of Murphy's Petrel as it is being found in offshore waters with increasing regularity (Howell and Pyle 1997).



Steller's Eider - Walla Walla River delta (WW), 10 Sep 1995 (Photo MerryLynn Denny)



Ross's Gull - McNary Dam (BE), 30 Nov 1994 (Photo Bob Brawdy/*Tri-Cities Herald*)



Acorn Woodpecker - Lyle (KL), 3 May 1990 (Photo Wilson Cady)



Vermilion Flycatcher - Ridgefield NWR (CK), 6 Jan 1996 (Photo Ruth Sullivan)



Murphy's Petrel - off Westport (GH), 31 Aug 1995 (Photo Jim McGinity)



Long-billed Murrelet - Edmonds (SN), 16 Nov 1995 (Photo Robert Howson)



Little Blue Heron - Crockett's Lake (IS), 23 Oct 1989 (Photo Scott Ray)

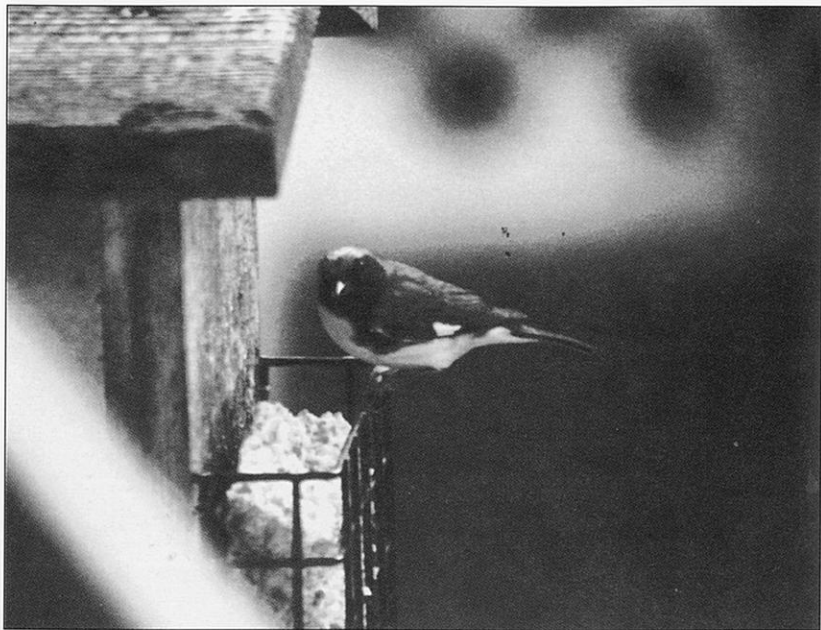


Little Blue Heron - Crockett's Lake (IS), 23 Oct 1989 (Photo Scott Ray)





Yellow-throated Vireo - Spencer Island (SN), 27 Oct 1995 (Photo Patrick Sullivan)



Black-throated Blue Warbler - Olympia (TH), 7 Mar 1995 (Photo Lola Smith)



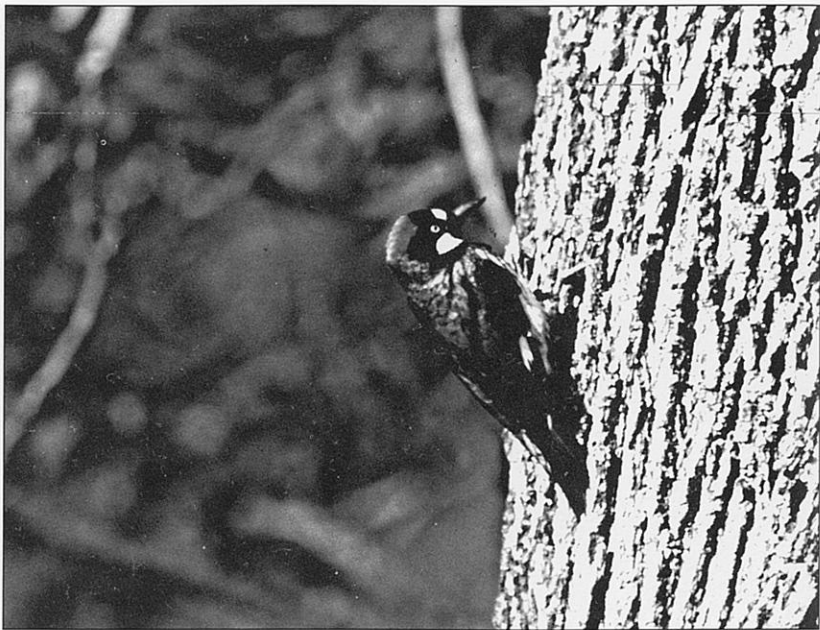
Indigo Bunting - Spokane (SP), 30 Sep 1994 (Photo David Mann)



Brambling - Naselle (PA), 24 Dec 1995 (Photo Skip Russell)



Garganey - Richland (BE), 28 Dec 1994 (Photo Scott Ray)



Acorn Woodpecker - Lyle (KL), 29 Oct 1989 (Photo Scott Ray)



Fork-tailed Flycatcher - Ilwaco (PA), 13 Sep 1995 (Photo Paul Cozens)



White Wagtail - Ocean Park (PA), 26 Apr 1984 (Photo Greg Lippert)



Chestnut-collared Longspur - Seattle (KG), 7 Dec 1995 (Photo Bob Sundstrom)



Chestnut-collared Longspur - Seattle (KG), 3 Dec 1995 (Photo Paul Munno)



McKay's Bunting - Ocean Shores (GH), 1978-1979 (Photo Robert M. Evans)



McKay's Bunting with Snow Buntings - Ocean Shores (GH), 20 Feb 1988  
(Photo Bob O'Brien)



McKay's Bunting and Snow Bunting - Ocean Shores (GH), Jan 1988  
(Photo Robert Ashbaugh)



Rusty Blackbird - Whidbey Island (IS), 17 Dec 1994 (Photo Dick McNeely)



Rusty Blackbird - Seattle (KG), 31 Oct 1995 (Photo Kevin Aanerud)

**COOK'S PETREL.** A bird found dead (UPS #21486) on the beach at Grayland, GH on 15 Dec 1995 is the first record for the state (COPE-95-1).

**SNOWY EGRET.** The second-oldest record for the state was at Badger Lake, SP on 22-27 May 1977, FOH, SSt (SNEG-77-1). Other records include a bird at Wahluke Wildlife-Recreation Area, GT on 21 Oct 1980, ARi (SNEG-80-1); one at Bowerman Basin, GH on 22 Apr 1984, MHa (SNEG-84-1); another also at Bowerman Basin, GH on 9 Jun 1984, BMo (SNEG-84-2) which the Committee accepted as a separate record; and one at Olympia, TH on 8-16 May 1996, MCa, JSk, +TWr (SNEG-96-1). A photograph of the latter bird was published in WN 45:8, 1996. There are now 12 accepted records for the state with several other reports remaining to be examined.

**LITTLE BLUE HERON.** The first state record was an immature at Judson Lake, WC from 15 Oct 1974 to 5 Jan 1975, WWe, EHu, +KBr (LBHE-74-1). This record was published by Weber and Hunn (1978). Another immature was seen by many observers at Crockett's Lake, IS on 23-26 Oct 1989, +SRa, +RSm (LBHE-89-1).

**ROSS'S GOOSE.** One was at Leadbetter Point, PA on 8 May 1971, HNe (ROGO-71-1). Other records include a bird at Bayview, SG on 13 Apr 1976, WSl (ROGO-76-1); one at Ocean Shores, GH on 4 May 1980, G&RR, KBN (ROGO-80-1); one at Seattle, KG on 24 Apr 1990, +RSm (ROGO-1990-1); an immature at Ridgefield National Wildlife Refuge, CK on 3 Dec 1995-1 Jan 1996, JEn (ROGO-95-1); and an individual at Samish Flats, SG on 28 Jan-22 Feb 1996, +RSm (ROGO-96-1). The Committee has now accepted seven records of Ross's Goose, all of them from western Washington. There are at least seventeen other such reports in recent years (1974 to the present) that have not yet been examined. For many years, several reports have been received annually from eastern Washington, where the species has not been reviewed. It is likely that Ross's Goose will be reclassified to "non-review" status at the next opportunity for Committee action.

**GARGANEY.** One was seen and photographed at Richland, BE on 15-22 Dec 1994, +RWo, EHu, +SRa (GARG-94-1). An account of this sighting was published by Stepniewski in WN 35:1, 1995.

**STELLER'S EIDER.** The second record for the state was a male photographed at the Walla Walla River delta, WW on 9-13 Sep 1995, +MLDe, MDe (STEI-95-1). The location for this record, east of the Cascades, is surprising as is the early fall date, but the Committee felt it reasonable to assume that this individual was of wild origin. An account and photographs by Mike and MerryLynn Denny were published in WN 39:3, 1995.

**RED-SHOULDERED HAWK.** One was reported from Ridgefield National Wildlife Refuge, CK on 28 Feb 1995, KAa (RSHA-95-1). An injured adult was found in Rainier, TH on 28 Mar 1995 (RSHA-95-2). The bird was sent to the Olympic Wildlife Rescue Center in McCleary and, there, was identified and photographed, +JSk. An immature was described from Ridgefield National Wildlife Refuge, CK on 3 Jan 1996, JEn (RSHA-96-1). There are now six accepted records, and an additional four reports have yet to be reviewed. This species has been reported regularly from Ridgefield

National Wildlife Refuge each winter season since 1993. It is still unclear if these sightings refer to more than one or two individual birds.

**BROAD-WINGED HAWK.** A bird from Spokane, SP on 11 Sep 1970, JAc (BWHA-70-1) precedes all previous records to become the first state record. The Committee has accepted five records.

**MOUNTAIN PLOVER.** An adult in alternate plumage at Turnbull National Wildlife Refuge, SP on 6 May 1968, DPa (MOPL-68-1) is the second of two records. Since this species is declining due to loss of nesting habitat, it is not likely to occur again in the state (Paulson 1993).

**HUDSONIAN GODWIT.** An immature male was collected (WSU #59-547) from O'Sullivan Dam, GT on 12 Sep 1959, LLF (HUGO-59-1). The report was published (M 41:16). This becomes the first accepted record for the state. Another east-side report, from 1961, awaits review pending receipt of additional information.

**BAR-TAILED GODWIT.** An adult male in alternate plumage was at Ocean Shores, GH on 5 Aug 1995, DWr, MAh (BTGO-95-1). This is the fifteenth accepted record. There are at least seven recent reports that have not been reviewed by the Committee.

**BLACK-HEADED GULL.** A wintering adult (BHGU-94-1) at Point No Point, KP was first reported on 22 Dec 1994 and last seen on 19 Mar 1995, VNe. It is the eighth state record to be accepted. Two other sightings, from Alki Point, KG on 27 Oct 1994 (WN 35:5, 1995) and Edmonds, SN on 27 Dec 1994 (WN 37:5, 1995), may refer to this same individual, but no details of these sightings have been reported to the Committee.

**ICELAND GULL.** A first-winter bird was at Banks Lake, GT on 7 Dec 1991, ASt (ICGU-91-1). Another was reported from Clarkston, AS on 8 Jan 1995, KDu, J&MH, DSv (ICGU-95-1). The Banks Lake record was a previously rejected report (Tweit and Paulson, 1994). Careful deliberation has brought the Committee to reconsider and accept this record. Although it was a single-person report, this bird was well described in all details with thorough comparisons to similar gull species. The Clarkston bird is the sixth accepted record for the state. All records pertain to first-year birds.

**ROSS'S GULL.** An adult at McNary Dam, BE on 27 Nov 1994 was seen by many observers until its last appearance on 1 Dec 1994, +BBr, +RSu, PSu (ROGU-1994-1). A detailed account was written by Phil Bartley in *Washington Birder* 3(1):1,5-6. Photographs and short accounts by Andy Stepniewski and Patrick Sullivan were published in WN 35:1,16, 1995, and by Scott Ray in *Washington Birder* 2(4):1. This is the first record of Ross's Gull in the state and also represents the second record for Oregon, as this bird visited both sides of the state boundary.

**LONG-BILLED MURRELET.** The first accepted record of this species was of one photographed at Edmonds, SN on 16 Nov 1995, +KAa, +RHo (LBMU-95-1). This northwestern Pacific resident was only recently split from its relative, the Marbled Murrelet, and given full species status

by the AOU (1997). Another, earlier sighting—well-documented and described (Skriletz 1996)—has yet to be reviewed by the Committee.

**XANTUS'S MURRELET.** The first state record is a specimen (USNM #365372) collected from Copalis Beach, GH on 6 Dec 1941 (XAMU-41-1). The published description (*Auk* 75:90-91) refers to the subspecies *scrippsi*.

**XANTUS'S/CRAVERI'S MURRELET.** These two very similar species are not always separable based on field observations, particularly as these small alcids are often only glimpsed flying quickly past on pelagic boat trips. Washington observers have long assumed that their sightings properly referred to Xantus's. However, the Committee believes that the possibility of the occurrence of Craveri's should also be considered. Therefore, all otherwise acceptable reports of either species, but with insufficient detail to distinguish between them, will be considered as Xantus's/Craveri's. Two were off Westport, GH on 11 Oct 1970, TWa (XCMU-70-1). "Several" were thirty miles off Westport, GH on 8 Sep 1974, EHu (XCMU-74-1). A sighting of two off Westport, GH on 16 May 1976, DPa (XCMU-76-1) was an unusual spring record.

**HORNED PUFFIN.** One was seen near Smith Island, IS on 30 May 1981, S&JvN (HOPU-81-1). Another was seen from Point Partridge, Whidbey Island, IS on 3 Sep 1981, CPe (HOPU-81-2). In addition to eight accepted specimen records of birds washed up on beaches, there are now four accepted records of live bird sightings and about eight other unreviewed sightings.

**BLACK-BILLED CUCKOO.** The first state record was a specimen (WSU #52-241) collected from Kamiak, WN on 1 Jul 1952 (BBCU-52-1). The Committee has now accepted three records.

**YELLOW-BILLED CUCKOO.** A bird seen and heard at Tonasket, OK on 20 Jul 1991, DSw (YBCU-91-1) was reportedly calling in the area for two weeks.

**NORTHERN HAWK OWL.** A specimen (USNM #415882) collected from Whidbey Island, IS on 22 Oct 1924 represents the first state record (NHOW-24-1). An individual seen at Bridgeport, OK from 20 Jan-14 Feb 1982 (NHOW-82-1) was one of only a few live birds reported up to that time. A photograph appeared in AB 36:314. More recent sightings are from near Spokane, SP from 11-29 Dec 1992 (NHOW-92-3), and from Winthrop, OK from 28 Dec 1995-4 Jan 1996, +RLe (NHOW-95-1). There are now eight records for the state.

**BOREAL OWL.** One was collected (WSU #74-160) from Pullman, WN on 10 Jan 1974 (BOOW-74-1). The Committee has also accepted a record from Mt. Rainier, PI on 11 Sep 1992, DPa (BOOW-92-1). There have been numerous sightings of this species reported in the last decade, but often without any supporting details or documentation. An interesting account of Boreal Owl nesting in Washington was published by Stepniewski (1996).

ACORN WOODPECKER. An isolated individual was recorded from Washougal, CK on 29 Sep 1978, RHa (ACWO-78-1). Another single bird was seen at Fort Simcoe, YA from 25-28 Mar 1979, ARi, CBo (ACWO-79-1). A small colony of Acorn Woodpeckers was present in Lyle, KL from autumn 1989, documented by photographs on 24 Oct 1989, +SRa (ACWO-89-1) and 3 May 1990, +WCa (ACWO-90-1). While details are unclear, this colony had apparently disappeared by the summer of 1992 (AB 46:471). A fifth accepted record comes from a feeder in Camas, CK on 11 Jun 1995, RWa (ACWO-95-1).

VERMILION FLYCATCHER. The second record for the state was a female seen at Ridgefield National Wildlife Refuge, CK from 31 Dec 1995-25 Jan 1996, +JEn, HNe (VEFL-95-1). A photograph was published in WN 43:9, 1996.

TROPICAL/COUCH'S KINGBIRD. Two records without evidence of vocalizations are a specimen (USNM #421781) from Hoquiam, GH on 1 Nov 1953 (TCKI-53-1) and an individual observed at Ocean Shores, GH on 14 Oct and 2 Nov 1995, RWo, LVa (TCKI-95-1).

FORK-TAILED FLYCATCHER. This surprising first state record comes from Ilwaco, PA from 12-13 Sep 1995, +G&RR, EHu, +PCo (FTFL-95-1). A photograph and account of this sighting were published by Robert Ramsey in WN 39:1,3, 1995. Fork-tailed Flycatchers have been recorded only two other times west of Texas: once in Idaho, 25 Aug-7 Sep 1991, and once in California, 4-8 Sep 1992 (Mlodinow and O'Brien 1996).

YELLOW-THROATED VIREO. The first record for all of Washington, Oregon, and British Columbia is from Spencer Island, SN on 26-28 Oct 1995, +KAa, BFe, EHu, +PSu (YTVI-95-1). An account and photograph were published in WN 40:1,3, 1995.

BROWN THRASHER. The second record for the state was a bird seen at American Camp, San Juan Island, IS on 26 Jun 1995, JDu (BRTH-95-1). The first record to be documented with a photograph was at Coulee Creek, SP from 15 Jan-19 Feb 1996, JAc, +JPo (BRTH-96-1), moving the species from the Supplementary List to full Check-list status. The only previously accepted record was a single-person sighting from 1994.

WHITE WAGTAIL. An adult in breeding plumage was photographed at Ocean Park, PA on 26 Apr 1984, +GLi (WHWA-84-2).

WHITE/BLACK-BACKED WAGTAIL. An individual of one or the other species was at West Point, Seattle, KG on 8-9 Nov 1981, J&RMc, DHu (WBWA-81-1). This represents the oldest record for any species of wagtail in the state.

TENNESSEE WARBLER. One was seen at Montlake Fill, Seattle, KG from 6-9 Sep 1995, KAa (TEWA-95-1). There are seven other accepted records for this species.

NORTHERN PARULA. A singing bird was seen at "Big Four," SN on 22 Jun 1995, RVe (NOPA-95-1). Five of the seven accepted records have occurred in the late spring to early summer.

CHESTNUT-SIDED WARBLER. A male was at Wapato, YA on 23 Jun 1995, BBo, ASt (CSWA-95-1). Seven of the eight accepted records have occurred between the dates of 11 and 26 June.

BLACK-THROATED BLUE WARBLER. A male in Olympia, TH from 5 Mar-13 Apr 1995 was photographed, +LSm (BUWA-95-1) for the fourth state record and the second record for this species in the winter of 1994-1995.

BLACKBURNIAN WARBLER. A breeding-plumaged male was reported from Almira, LI on 25 Jun 1996, CBu (BLWA-96-1). All four records for this species in the state have been sight records.

BLACKPOLL WARBLER. One was seen at Vantage, KT on 8 Sep 1994, KAa (BPWA-94-1). There are now seven records for the state.

BLACK-AND-WHITE WARBLER. Four records accepted in this round include a winter bird at Pasco, FR on 21 Feb 1961, LNu (BAWA-61-1); a specimen (WSU #66-64) from Pullman, WN on 10 Jun 1965 (BAWA-65-1); another (WSU #73-215) from Pullman, WN on 30 May 1973 (BAWA-73-1); and a sight record from Wenas Campground, YA on 3 May 1976, ZBu (BAWA-76-1). Fourteen records of this species have now been accepted by the Committee.

OVENBIRD. An individual collected (WSU #56-439) from Spokane, SP on 14 Nov 1956 was the first record for the state (OVEN-56-1). Another was collected (WSU #77-399) from Pullman, WN on 12 May 1977 (OVEN-77-1). Robert Woodley reported one from his yard in Richland, BE on 31 May 1990, RWo (OVEN-90-1). Ten records have been accepted.

CLAY-COLORED SPARROW. The first state record was a specimen (WSU #62-18) collected from Spokane, SP on 6 Jun 1960 (CCSP-60-1). One on the Skagit Flats, SG on 6 Apr 1975, EHu, BTw (CCSP-75-1); one at Metaline, PO on 29 May 1983, MEg (CCSP-83-1); a wintering bird on the Samish Flats, SG from 3 Dec 1988-19 Jan 1989, RSm (CCSP-88-1); and a singing male at Olympia, TH from 14 Jun-2 Jul 1995, MCa, EKr (CCSP-95-1) are the only records yet examined by the Committee. There are 15 other reports prior to 1989. Breeding has occurred near Spokane, SP, and many recent summer reports have come from Okanogan County where breeding might be confirmed in the future (Smith et al. 1997).

LE CONTE'S SPARROW. An individual struck a window and was collected (WSU #65-57) in Kennewick, BE on 29 May 1964 (LCSP-64-1) for the first state record (M 46:26). The fourth accepted record was a sight record from Lake Wenatchee, CH on 2 Jun 1996, DSt (LCSP-96-1).

NELSON'S SHARP-TAILED SPARROW. A record from Sullivan Lake, PO on 14 Sep 1986 (NSSP-86-1), originally accepted (Tweit and Paulson 1994) prior to the AOU decision to elevate two forms of Sharp-tailed Sparrow to full species status, was revisited by the Committee and determined to be of the brighter interior species *nelsoni*.

**CHESTNUT-COLLARED LONGSPUR.** A male in breeding plumage was seen along Soap Lake Road between Brewster and Okanogan, OK on 27 May 1995, GRe (CCLO-95-1). A more celebrated record was a winter-plumaged adult male found at the Montlake Fill in Seattle, KG from 3-12 Dec 1995, CMc, EHu, +MSm, +PMu, +KAa, +RSu, +PSu, +RSm (CCLO-95-2). A full discussion of this bird and several photographs were published by Scott Richardson in WN 42:1,3,6-7, 1996. There are four accepted state records to date.

**MCKAY'S BUNTING.** Two were seen at Ocean Shores, GH from 16 Dec 1978-5 Mar 1979, DFi, MMo, VGo, +REv, +PMa (MKBU-78-1) representing the first record for the state. Another record from Ocean Shores, GH occurred from Jan-Feb 1988, +BOB, +LWe (MKBU-88-1). One other bird was observed in a flock of Snow Buntings on the Lummi Flats, WC from 27-28 Nov 1993, JDu, DDr (MKBU-93-1). Two individuals with a flock of Snow Buntings, just across from Washington at the south jetty of the Columbia River from 23 Feb to mid-Mar 1980, are the only records from farther south (Gilligan et al. 1994).

**INDIGO BUNTING.** An adult male in partial molt was seen and photographed at Spokane, SP from 23 Sep-2 Oct 1994, +DMa (INBU-94-1). A male in full breeding plumage was seen at Redmond, KG on 1 Jun 1996, +JAI (INBU-96-1). The latter represents the sixth accepted record. There are at least five unexamined reports.

**RUSTY BLACKBIRD.** Accepted records include one from Seattle, KG from 5-7 Oct 1993, KAa (RUBL-93-1); a bird that spent several weeks at John Flavin's feeder in Lynnwood, SN, 12 Jan 1994, KAa (RUBL-94-1); a bird photographed on Whidbey Island, IS on 17 Dec 1994, +DMc (RUBL-94-2); one from Dungeness, CL on 24 Sep 1995, BBo (RUBL-95-1); and another at Seattle, KG on 31 Oct 1995, +KAa (RUBL-95-2). There are now 17 records for the state. All but two occurred between 24 September and 20 January; the exceptions were singles in February and March.

**COMMON GRACKLE.** A specimen record (WSU #81-257) from Touchet, WW on 3 Jul 1980 (COGR-80-1) was accepted by the Committee. There are now four records for the state.

**BRAMBLING.** A bird wintered at a feeder in Naselle, PA from 6 Dec 1995-10 Apr 1996, +SRu (BRAM-95-1); a photo appeared in WN 43:9, 1996. This is the eleventh record accepted by the Committee.

**HOARY REDPOLL.** Three records have been accepted: an adult female from Twisp, OK on 30 Jan 1982, MEg, EHu (HORE-82-1); an adult male from Tonasket, OK on 31 Jan 1982, EHu (HORE-82-2); and another adult near Twisp, OK on 9 Jan 1985, ARi (HORE-85-1). These individual birds were found in each case among large numbers of Common Redpolls. Review and acceptance of these records reinstate Hoary Redpoll to the Check-list.

## RECORD ACCEPTED FOR THE SUPPLEMENTARY LIST

**CALIFORNIA CONDOR.** This species was added to the Supplementary List, on the basis of a few individuals encountered by the explorers Meriwether Lewis and William Clark, near the Wind River, SM on 30 Oct 1805 (CACO-1805-1) and described in their journals (Moulton 1988). The Committee examined Clark's brief accounting and accepted it as a reliable, single-person sight record with an historical interest. There are numerous other nineteenth-century sight reports which the Committee has not reviewed. A specimen in the USNM, collected by J. K. Townsend near the mouth of the Columbia in what is now Washington (1834-1836), is expected to provide the evidence necessary to raise the species to full Check-list status, once the Committee has obtained and reviewed a photograph.

## REJECTED REPORTS

**SNOWY EGRET.** A bird reported at Tucannon, CB on 4 May 1975 (SNEG-75-1) was rejected as there was no description submitted. This report was published by Roberson (1980).

**LITTLE BLUE HERON.** There were few substantive details in support of a report from the Grand Ronde River, AS on 13-15 Oct 1987 (LBHE-87-1).

**COMMON EIDER.** A very perplexing and incomplete account of seven males and three females was published in C 8:57 by J. H. Bowles. This small flock, he says, was reported "off and on" from the vicinity of Tacoma, PI during the winter of 1905-1906. Bowles himself saw it at the Nisqually Flats, TH/PI on 6 Jan 1906 (COEI-06-1). In the absence of descriptive detail, the Committee decided not to accept the report. There are no state records for this species.

**SMEW.** A male was described from Seabeck, KP on 18 Dec 1995 (SMEW-95-1). The bird in the accompanying photograph is not identifiable to species, but the Committee is certain that it is not a Smew.

**BROAD-WINGED HAWK.** Most of the described details suggested an adult of this species, but the underparts were not accurately or sufficiently described to corroborate a sight report from Richmond Beach, KG on 30 Mar 1995 (BWHA-95-1).

**LITTLE STINT.** A report of a juvenile from the Skagit Flats, SG on 28 Aug 1994 (LIST-94-1) was a single-person description with considerable details. While several aspects of the description suggest the possibility of this species, the Committee concluded that other, common species could not be discounted. Describing the legs as "grayish-brown" does not rule out Least Sandpiper, and neither does "split supercilium." The Committee remains conservative in regard to juvenile stints, particularly owing to the great range of individual diversity within each species. No records of Little Stint have been accepted to date.

**CURLEW SANDPIPER.** A juvenile was reported at Quincy, GT on 18 Aug 1996 (CUSA-96-1). The Committee could not accept this report as many important and useful fieldmarks were not mentioned in the description or were not observed: leg color, leg length (proportionately), wing pattern, and rump pattern, for example. The report suggested that Stilt Sandpiper was not a possibility because of the strong whitish supercilium and the "buffy brown" upper breast; however, freshly plumaged juvenile Stilt Sandpipers have both of these characteristics.

**ICELAND GULL.** A bird reported to be in second-summer plumage at Long Beach, PA on 20 Aug 1983 (ICGU-83-1) was rejected because of insufficient details. The time of year suggests the possibility of a very faded and sun-bleached bird of a more common species, in late-summer plumage.

**SLATY-BACKED GULL.** An adult in alternate plumage was photographed and described from a boat trip off Westport, GH on 8 Feb 1992 (SBGU-92-1). Most of the Committee members found that the details did not rule out Western Gull. Winter-plumaged Slaty-Backed Gulls are more easily separated from the similar Westerns and can be identified with greater confidence.

**RED-LEGGED KITTIWAKE.** Two reports from Ocean Shores, GH were rejected. One was on 2 Apr 1987 (RLKI-87-1) and the other on 26 Apr 1987 (RLKI-87-2). Both descriptions were insufficient in detail.

**PARAKEET AUKLET.** A report from a ferry off Port Angeles, CL on 15 Apr 1973 (PAAU-73-1) and a description of 12-15 birds between Edmonds, SN and Kingston, KP on 12 May 1978 (PAAU-78-1) most likely refer to misidentified Rhinoceros Auklets. It is a common error to underestimate size of small ocean birds from the high vantage position of a large ferry.

**YELLOW-BILLED CUCKOO.** The Committee rejected a very brief report of an unseen calling bird from Turnbull National Wildlife Refuge, SP on 4 Jun 1983 (YBCU-83-1).

**NORTHERN HAWK OWL.** A wintering bird near Dungeness, CL from 31 Dec 1976-26 Jan 1977 (NHOW-76-1) was almost certainly a Short-eared Owl, as all details fit this species more appropriately.

**BOREAL OWL.** A pair feeding young was reported from Pullman, WN from 4 May-16 Jun 1979 (BOOW-79-1). This report was published (M 61:80) as the state's first breeding record. The Committee rejected the report, because it gives no identifying description and the habitat was completely inappropriate for a nesting Boreal Owl (see Stepniowski 1996).

**BROAD-TAILED HUMMINGBIRD.** A male was described from Spokane, SP on 11 May 1994 (BTHU-94-1). A very brief look and no mention of the trilling sound of the wings characteristic of this species led to the rejection of this report. There is still no record of this species for the state.

**BLACK PHOEBE.** A published report (C 66:162) of two seen near Hanford, BE on 4 Sep 1962 (BLPH-62-1) was rejected for lack of descriptive details. The observer wrote, in response to inquiry, that the field notebooks for that trip had been lost in a fire. Another bird observed for five minutes at Kennewick, BE on 8 Nov 1992 (BLPH-92-1) was rejected for insufficient details. Some members of the Committee were perplexed that the report did not include tail wagging or a call note, given that the bird was observed for a relatively long period of time.

**TROPICAL/COUCH'S KINGBIRD.** A bird reported by an experienced observer at White Swan, YA on 27 Oct 1962 (TCKI-62-1) was from an unlikely location and had no details. There are no accepted records for Tropical Kingbird in eastern Washington (and none for Couch's anywhere in the state).

**BLACK-THROATED BLUE WARBLER.** A reported male from Lake Joy, KG on 21 May 1995 (BUWA-95-2) was seen by a skilled observer. However, the "half-second look" was thought too brief to assure certainty with such a rarity in Washington.

**MOURNING WARBLER.** A bird seen near Panhandle Lake, PO on 2 May 1986 (MOWA-86-2) was rejected by the Committee for lack of details. This report was published (AB 40:501). No records of Mourning Warbler have been accepted.

**LARK BUNTING.** A winter-plumaged bird from Ocean Shores, GH on 7 Sep 1995 (LKBU-95-1) was reported with insufficient detail. Even though the observers believed the bird was not a Brown-headed Cowbird, most Committee members were still of the opinion that it could well have been that species.

**HOARY REDPOLL.** Four reports were rejected for insufficient detail: one at Marietta, WC on 28 Dec 1969 (HORE-69-1); a flock of 16 near Panhandle Lake, PO on 28 Nov 1976 (HORE-76-1); one from Bridgeport, DO on 11 Feb 1982 (HORE-82-1); and an immature near Winthrop, OK on 28 Dec 1984 (HORE-84-1). Common Redpolls can be very pale in color, and circumstances of lighting in snow conditions can make it difficult to distinguish between these two similar species. The Committee has taken a cautious attitude toward accepting records of Hoary Redpolls. The Marietta, Bridgeport, and Winthrop reports were published (AFN 24:532, AB 36:315, and AB 39:191, respectively).

**LAWRENCE'S GOLDFINCH.** A single-person sight record of a pair at a feeder in Tacoma, PI on 30 Mar 1994 (LAGO-94-1) was rejected for insufficient details. There are no state records to date. The Committee encourages photographic documentation for any such species with no established pattern of vagrancy for the Northwest region.

#### CONTRIBUTORS

Kevin Aanerud (KAa), Jim Acton (JAc), Mary Ellen Ahearn (MAh), Jan Alferness (JAl), Bob Boekelheide (BBo), Cathy Bolles (CBo), Bob



Brawdy (BBr), Kenneth Brown (KBn), Ken Brunner (KBr), Charles Buechele (CBu), Janice Burger (JBu), Zee Butler (ZBu), Wilson Cady (WCa), Michael Carmody (MCA), Paul Cozens (PCo), MerryLynn Denny (MLDe), Mike Denny (MDe), David Drummond (DDr), Jim Duemmel (JDu), Kas Dumroese (KDu), Mark Egger (MEg), Joe Engler (JEn), Robert Evans (REv), Ben Feltner (BFe), David Fix (DFi), Vic Goodwill (VGo), Richard Hamby (RHa), Marilyn Hatheway (MHa), John and Mary Hirth (J&MH), Robert Howson (RHo), Eugene Hunn (EHu), David Hutchinson (DHu), Eric Kraig (EKr), Lynn LaFave (LLF), Rod Lee (RLe), Greg Lippert (GLi), David Mann (DMA), Phil Mattocks (PMA), Jim McGinity (JMc), Christopher McInerney (CMc), Judith and Robert McMurtrie (J&RMc), Dick McNeely (DMc), Michael Moore (MMo), Bob Morse (BMo), Paul Munno (PMu), Harry Nehls (HNe), Vic Nelson (VNe), Louise Nunn (LNU), Bob O'Brien (BOB), Frank Ohme (FOh), Dennis Paulson (DPa), Joanne Powell (JPo), Curtis Pearson (CPe), Georgia and Robert Ramsey (G&RR), Scott Ray (SRa), Gene Revelas (GRe), Alan Richards (ARi), Skip Russell (SRu), Jeff Skriletz (JSk), William Sladen (WSl), Lola Smith (LSm), Michael Smith (MSm), S. O. Stanley (SSt), Daniel Stephens (DSt), Andrew Stepniewski (ASt), Patrick Sullivan (PSu), Ruth Sullivan (RSu), Robert Sundstrom (RSm), Dan Svingen (DSv), Dale Swedberg (DSw), Bill Tweit (BTw), Linda Valdez (LVa), Sally and Jan van Niel (S&JvN), Richard Veit (RvE), Terence Wahl (TWa), Tom Walker (TWr), Robert Watrous (RWa), Wayne Weber (WWe), Linda Weiland (LWe), Robert Woodley (RWo), David Wright (DWr).

#### LITERATURE CITED

- AOU. 1983. Check-list of North American birds, 6th ed. American Ornithologists' Union, Lawrence, Kansas. Supplements in Auk 1985 (102:680-686), 1987 (104:591-596), 1989 (106:532-538), 1991 (108:750-754), 1993 (110:675-682), 1995 (112:819-830), 1997 (114:542-552).
- Gilligan, J., M. Smith, D. Rogers, and A. Contreras. 1994. Birds of Oregon: status and distribution. Cinclus Publications. McMinnville, Oregon.
- Howell, S.N.G. and P. Pyle. 1997. Twentieth report of the California Bird Records Committee: 1994 records. *Western Birds* 28:117-141.
- Mattocks, P. and K. Aanerud. 1997. Second summary report of the Washington Bird Records Committee. *WOSNews* 47:6-7.
- Mlodinow, S.G. and M. O'Brien. 1996. America's 100 most wanted birds. Falcon Press. Helena.
- Moulton, G.E. (ed). 1988. Journals of the Lewis and Clark Expedition. Vol. 5: July 28 through November 1, 1805. University of Nebraska Press. Lincoln and London.
- Paulson, D. 1993. Shorebirds of the Pacific Northwest. University of Washington Press. Seattle and London.
- Roberson, D. 1980. Rare Birds of the West Coast of North America. Woodcock Publications. Pacific Grove, California.
- Skriletz, J. 1996. First Washington record of the "Long-billed" Marbled Murrelet. *Washington Birds* 5:53-54.

- Smith, M.R., P.W. Mattocks, Jr., and K.M. Cassidy. 1997. Breeding birds of Washington state. Volume 4 in Washington State Gap Analysis—final report (K.M. Cassidy, C.E. Grue, M.R. Smith, and K.M. Dvornich, eds.). Seattle Audubon Society Publications in Zoology No. 1. Seattle.
- Stepniewski, A. 1996. Boreal Owls found nesting in Washington in 1992. *Washington Birds* 5:55-60.
- Tweit, B. and D.R. Paulson. 1994. First report of the Washington Bird Records Committee. *Washington Birds* 3:11-41.
- Tweit, B. and J. Skriletz. 1996. Second report of the Washington Bird Records Committee. *Washington Birds* 5:7-28.
- Weber, W.C. and E.S. Hunn. 1978. First record of the Little Blue Heron for British Columbia and Washington. *Western Birds* 9:33-34.

*Manuscript received 26 October 1997*

## AN OBSERVATION OF CARRION FEEDING IN COOPER'S HAWK

Tom Aversa

Woodland Park Zoo, 5500 Phinney Avenue North  
Seattle, Washington 98103-5897

Scavenging is generally an uncommon behavior among raptors, particularly the accipiters. Past comprehensive works on the Cooper's Hawk (*Accipiter cooperi*) have not mentioned the occurrence of carrion feeding in this species (Bent 1937, Rosenfield and Bielefeldt 1993). However, most dietary studies have been based primarily on the analysis of food items brought back to the nest by the adult birds (Meng 1959, Toland 1985, Kennedy and Johnson 1986). Nesting studies are not always valid indicators of yearlong food preferences for raptors (Beebe 1976). Much less has been written about food utilization by birds of prey during the non-breeding season.

During any season, Cooper's Hawks prefer to feed on birds (Clark and Wheeler 1987), although Bielefeldt et al. (1992) point out that the biomass of small mammals brought back to the nest may exceed that of birds delivered to the nest. The optimal avian prey of Cooper's Hawk is robin/jay/flicker-sized, according to Rosenfield and Bielefeldt (1993). However, this strong dietary preference does not preclude opportunistic carrion feeding.

I observed an immature Cooper's Hawk feeding on the remains of a Northern Pintail (*Anas acuta*) in a muddy field just west of the Skagit Wildlife Area headquarters on Fir Island, Skagit County, Washington on 27 November 1996 at 15:45. An adult female Northern Harrier (*Circus cyaneus*) was diving on the Cooper's Hawk, but the bird refused to relinquish its prize. The accipiter fed on the duck for five minutes before carrying the remains 30 m, with some difficulty, to a grassy swale where it continued to feed for ten more minutes. The harrier settled down onto the carcass of a Mallard (*Anas platyrhynchos*) 20 m from the original location of the pintail remains. I watched through a spotting scope, using my car as a blind, as both raptors fed peaceably on their ducks 50 m apart. They flushed as I left my vehicle. Subsequent investigation of the site revealed that the field was full of duck carcasses that had been shot and debreasted by hunters.

I have found only one published report of carrion feeding in Cooper's Hawk. Schwalbe and Schwalbe (1995) described an immature bird feeding on a rabbit carcass in Pennsylvania on 18 January 1995. No extreme weather conditions were noted in this report. However, my observation was made just before dusk on a day with temperatures close to 15° C, brisk winds out of the southeast, and heavy continuous precipitation. The prevailing wind-driven rain conditions could have made acquisition of live prey difficult for both the accipiter and the harrier.

Harsh winter weather may force raptors, particularly immatures, to feed on an easily available meal. Bildstein (in Palmer 1988) observed that Northern Harriers fed more on carrion in severe winters than in mild winters. Ratcliffe (1980) and Buchanan (1991) mention Peregrine Falcons (*Falco peregrinus*) feeding on carrion during winter. Sheffield and Jobe (1996) reported winter carrion feeding in Red-tailed Hawks (*Buteo jamaicensis*) and suggested that this practice may be far more prevalent for this species than the literature has indicated. I have also observed, on the Samish Flats, a Rough-legged Hawk (*Buteo lagopus*) feeding on a duck carcass that it had probably scavenged. The Schwalbes (pers. comm.) reported seeing Rough-legged Hawks feeding on a deer carcass in Pennsylvania, and Ehrlich et al. (1988) list carrion as a secondary food source for this species. Hunting activities by humans on the Skagit and Samish Flats undoubtedly provide an abundant supply of food for a variety of raptors in the form of carrion and injured waterfowl. Other obvious benefactors are the many Bald Eagles (*Haliaeetus leucocephalus*) and Red-tailed Hawks that use these areas, as well as at least one Cooper's Hawk.

### LITERATURE CITED

- Beebe, F.L. 1976. Hawks, falcons and falconry. Hancock House Publishers Ltd. Saanichton.
- Bent, A.C. 1937. Life histories of North American birds of prey. Part 1. U.S. National Museum Bulletin. No. 167. Smithsonian Institution. Washington, D.C.
- Bielefeldt, J., R.N. Rosenfield, and J.M. Papp. 1992. Unfounded assumptions about the diet of the Cooper's Hawk. *Condor* 94:427-436.
- Buchanan, J.B. 1991. Two cases of carrion-feeding by Peregrine Falcons in western Washington. *Northwestern Naturalist* 72:28-29.
- Clark, W.S. and B.K. Wheeler. 1987. Field guide to hawks, North America. Houghton Mifflin. Boston.
- Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. *Birders' handbook*. Simon and Schuster. New York.
- Kennedy, P.L. and D.R. Johnson. 1986. Prey-size selection in nesting male and female Cooper's Hawks. *Wilson Bulletin* 98:110-115.
- Meng, H.K. 1959. Food habits of nesting Cooper's Hawks and Goshawks in New York and Pennsylvania. *Wilson Bulletin* 71:169-174.
- Palmer, R.S. (ed.). 1988. *Handbook of North American birds*. Vol. 4. Yale University Press. New Haven and London.
- Ratcliff, D. 1980. *Peregrine Falcon*. Buteo Books. Vermillion, S.D.
- Rosenfield, R.N. and J. Bielefeldt. 1993. *Cooper's Hawk*. In *Birds of North America*, no. 75. (A. Poole and F. Gill, eds.). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.
- Schwalbe, P. and G. Schwalbe. 1995. *Cooper's Hawk utilizing carrion*. *Pennsylvania Birds* 8(4):215.
- Sheffield, S.R. and N. Jobe. 1996. Winter carrion feeding of Red-tailed Hawks in Oklahoma. *Raptor Research* 30(1):44.
- Toland, B. 1985. Food habits and hunting success of Cooper's Hawks in Missouri. *Journal of Field Ornithology* 56(4):419-422.

Manuscript received 16 August 1997

## SEASONAL ABUNDANCE OF SHOREBIRDS AT PUGET SOUND ESTUARIES

Joseph R. Evenson and Joseph B. Buchanan  
*Cascadia Research Collective, 218-1/2 West Fourth Avenue  
Olympia, Washington 98501*

Long-term monitoring data from eastern North America indicate that several species of migratory shorebirds have experienced population declines (Howe et al. 1989, Morrison et al. 1994). Several of those species also migrate along the west coast of North America. It is currently unknown whether these, or other western subpopulations or species, are experiencing similar population changes. Consequently, long-term monitoring is required to determine the status of the shorebirds migrating and wintering along the Pacific Flyway (Page and Gill 1994). An obvious prerequisite for such an effort is the identification of potential monitoring sites.

A number of potential monitoring sites in the Greater Puget Sound (GPS) region of Washington were previously identified (Van Velzen 1973, Brennan et al. 1985, Buchanan 1988a). Those earlier projects, however, were either spatially or temporally limited in scope. The goal of the Pacific Flyway Project, coordinated by Point Reyes Bird Observatory, was to identify regionally important wintering and migratory staging areas in western North America. Our specific goal was to identify sites in the GPS region that would be potentially suitable for monitoring shorebird populations (Buchanan and Evenson 1997). We previously reported the general results of the first three years of winter surveys in this region (Evenson and Buchanan 1995). In this paper we present the complete results of the five years of winter surveys as well as three years of count results from spring and autumn migration.

### STUDY AREA

The GPS region includes four geographic areas: Northern Puget Sound (NPS), Central and Southern Puget Sound (CSPS), Hood Canal (HC), and the Strait of Juan de Fuca and Admiralty Inlet (SJF/AI) (Appendix 1). The NPS is dominated by seven large estuaries and several smaller pocket bays. The other three areas are characterized by a multitude of small estuaries and very few moderate-sized ones. Most of the sites occur in areas adjacent to forested uplands. However, five large estuaries in the NPS, and single sites in the other three regions, are situated near areas of extensive agricultural, or otherwise nonforested, relatively undeveloped lowlands. A few estuaries are in urban or heavily developed areas (e.g., Commencement Bay in Tacoma). The amount of saltmarsh habitat present at the sites is variable and ranges from com-

plete absence to areas hundreds of hectares in size. Most sites were estuarine; however, two sites were shallow, brackish ponds, and a variety of other habitats (e.g., sand beaches, rock jetties) was present at several sites.

### METHODS

We conducted counts at all of the identifiable estuarine sites within the four regions. Shorebird counts were conducted between 1990 and 1996. Most counts involved a combination of aerial and ground-based efforts. However, there were no aerial counts made in the winter of 1990-1991 and spring 1991. Because the objective of these counts was to identify important sites for future monitoring efforts, most censuses involved a single visit to each site each season (see Colwell 1994, Buchanan and Evenson 1997). Winter counts coincided with the local Christmas Bird Count (CBC) effort, but in 1993-1994, 1994-1995, and 1995-1996 two or more counts were conducted before and/or after CBCs. Counts during spring generally coincided with the peak passage of migrant Western Sandpipers in late April, but because the timing of migration varied annually, it is likely that some counts did not occur on the actual peak date. Counts during autumn covered a wide period each year. A list of census dates is presented in Appendix 2. We were occasionally unable to conduct the aerial counts at the same time as the ground counts. However, we believe the two efforts coincided enough that the ground counts provided reliable estimates of species proportions.

We used a combination of ground-based and aerial counts for two reasons. First, several estuaries in the NPS are very large, and access to parts of these sites is logistically difficult. Second, shorebirds are known to move among some of these estuaries (Brennan et al. 1985, Evenson and Buchanan 1995), making it impossible simply to add site totals to derive estimates of regional shorebird abundance. For these reasons, we made counts of all intertidal areas at each of the large northern sites (Drayton Harbor, Birch Bay, Lummi Bay, Bellingham Bay, Samish Bay, Padilla Bay, Skagit Bay, Port Susan, and Snohomish River delta) from a small airplane flying at an altitude of 60-70 m; we also made counts of birds using fallow agricultural lands adjacent to these sites (we did not search areas >5 km inland from an estuary). These aerial counts were our primary estimates of shorebird abundance at these estuaries. Counts were made on rising or falling tides within about four hours of high tide. This enabled us to count birds when they were aggregated on relatively limited mudflat areas soon before or after the high-tide roosting period.

The objective of the ground-based counts was to assess species composition, because this was not possible from the air. During winter this meant estimating the flock composition of small sandpipers (Dunlins and Western Sandpipers) and the presence of other less common spe-

cies. Black-bellied Plovers could be identified from the air and were generally distinguishable when in mixed-species flocks. Ground-based counts were used for all other species during winter. Ground-based counts during spring and autumn were used to estimate the composition of sandpiper flocks and to distinguish between similar species such as Greater Yellowlegs and Lesser Yellowlegs. Ground-based proportional data were applied to species that could not be identified from the air; this was generally done on a site-specific basis. Ground-based counts were made by a total of 217 observers who counted shorebirds at 69 sites (Appendix 1).

### SPECIES ACCOUNTS

#### Black-bellied Plover *Pluvialis squatarola*

This species was well distributed throughout Puget Sound, particularly during winter, and counts  $\geq 20$  birds were made at 18 sites (Table 1). The highest winter count was from Dungeness Bay (275 in 1990-1991), and counts of  $\geq 100$  birds were made at Samish Bay, Sequim Bay, Totten Inlet, Port Susan, Skagit Bay, and Port Angeles (Table 1). The highest count during spring was from Totten Inlet (339 in 1993), and other counts of  $\geq 100$  birds were made at Samish Bay, Sequim Bay, Dungeness Bay, and Lummi Bay (Table 1). Only three sites had counts of  $\geq 100$  birds during autumn: Dungeness (750 in 1991), Samish Bay, and Drayton Harbor (Table 1). With the exception of the Hood Canal area, all regions had sites which supported  $\geq 20$  birds in at least one season. This was the second most abundant species in winter and the third most abundant species during both spring and autumn (Table 2). Generally, this species was as abundant in the GPS region as it was at Willapa Bay (Buchanan and Evenson 1997).



Black-bellied Plover (Photo Charlotte Escott)

Table 1. High counts of Black-bellied Plovers at sites in the Greater Puget Sound region with  $\geq 20$  birds during winter, spring, or autumn, 1990-1996.

Site	Winter						Spring			Autumn		
	90-91	92-93	93-94	94-95	95-96	1991	1993	1994	1991	1992	1993	
<b>Northern Puget Sound (NPS)</b>												
Bellingham Bay	49	1	0	0	0	11	20	0	0	0	0	
Drayton Harbor	0	11	43	6	0	0	12	1	0	125	5	
Lummi Bay	0	14	40	30	9	108	4	18	—	0	0	
Oak Harbor	29	24	10	11	35	40	0	0	2	0	0	
Padilla Bay	64	0	91	10	0	2	3	0	0	0	0	
Port Susan	3	41	28	107	32	0	0	0	0	0	72	
Samish Bay	100	100	200	7	172	153	200	82	60	145	80	
Skagit Bay	31	74	3	103	35	—	7	3	0	7	45	
Snohomish delta	—	0	0	68	15	0	0	6	0	0	0	
<b>Central and Southern Puget Sound (CSPS)</b>												
Eld Inlet	—	3	—	0	0	—	21	—	—	0	0	
Totten Inlet	120	—	146	96	49	175	339	—	33	37	74	
<b>Strait of Juan de Fuca and Admiralty Inlet (SJF/AI)</b>												
Boz Lake	—	0	19	70	—	—	—	0	0	24	0	
Deer Lagoon	—	0	21	35	—	10	9	3	6	5	4	
Dungeness Bay	275	230	118	188	266	—	108	26	750	250	216	
Kilisu Harbor	—	62	18	38	35	—	14	4	—	0	2	
Port Angeles Hbr.	6	48	67	0	119	—	55	16	—	—	2	
Port Ludlow	0	—	0	0	—	—	0	0	—	33	0	
Sequim Bay	2	6	115	182	232	11	145	23	48	0	40	

Table 2. Seasonal high counts of shorebirds in the Greater Puget Sound region, 1990-1996.

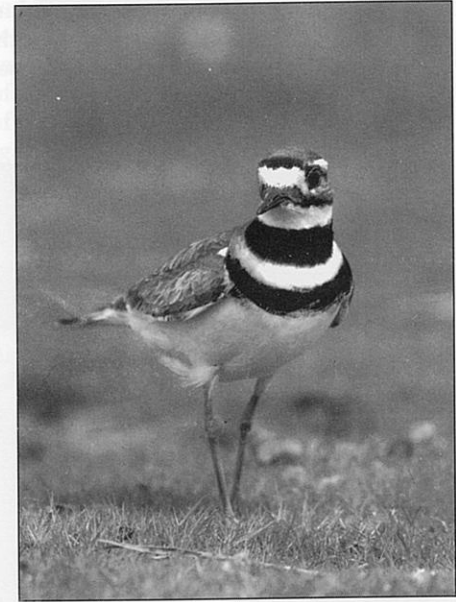
Species	Winter						Spring			Autumn						
	90-91		92-93		93-94		94-95		95-96		1991	1993	1994	1991	1992	1993
	791	1	661	0	706	621	1001	510	951	186	900	638	445	900	638	445
Semipalmated Plover	192	523	14	9	160	390	204	13	45	147	25	169	91	100	284	180
Killdeer	63	46	32	4	32	22	23	59	237	109	104	103	129	104	103	129
Black Oystercatcher	0	6	4	0	0	0	0	2	6	3	41	32	23	41	32	23
American Avocet	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	2
Greater Yellowlegs	0	1	1	1	1	0	1	1	0	0	0	0	1	0	0	1
Lesser Yellowlegs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solitary Sandpiper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Willet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wandering Tattler	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spotted Sandpiper	1	7	2	2	3	3	3	0	0	0	2	15	14	2	15	14
Whimbrel	4	4	4	2	0	0	1	1	32	1167	3	8	7	3	8	7
Long-billed Curlew	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Marbled Godwit	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0
Ruddy Turnstone	3	26	1	4	1	4	0	0	5	3	12	21	21	12	21	21
Black Turnstone	467	242	155	193	1406	243	243	23	103	119	46	10	131	46	10	131
Surf Scoter	77	0	0	6	2	0	0	0	0	0	0	3	4	0	3	4
Red Knot	276	755	452	442	1835	1835	1835	53	284	286	185	266	339	185	266	339
Semipalmated Sandpiper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Western Sandpiper	65	1693	1398	1406	847	847	847	53884	29361	77907	61360	23699	10824	61360	23699	10824
Least Sandpiper	20	10	144	0	15	15	15	0	359	541	1169	3033	683	1169	3033	683
Baird's Sandpiper	0	0	0	0	0	0	0	0	0	0	5	0	4	5	0	4
Pectoral Sandpiper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rock Sandpiper	22	4	3	0	0	0	0	0	4	0	0	0	1	0	0	1
Dunlin	50143	55302	65455	73795	78792	78792	78792	67677	52425	33540	24	72	32	24	72	32
Stilt Sandpiper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buff-breasted Sandpiper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dowitcher sp.	3	125	434	123	4	4	4	181	571	105	460	157	205	460	157	205
Common Snipe	19	70	0	29	7	7	7	0	2	2	0	0	1	0	0	1
Red-necked Phalarope	0	0	0	0	0	0	0	0	0	0	7	0	407	7	0	407
Red Phalarope	0	0	0	0	0	0	30	0	0	0	0	0	0	0	0	0

Semipalmated Plover *Charadrius semipalmatus*

There were only five winter records of this species: two birds at Dungeness Bay in 1995-1996 and single birds at Hamma Hamma River delta in 1990-1991, Padilla Bay in 1993-1994 and 1994-1995, and Dungeness Bay in 1993-1994. Counts of this species  $\geq 20$  were reported at only three sites during spring (45 at Dungeness Bay, 25 at Drayton Harbor, and 22 at Port Susan; all in 1994). The highest counts during autumn were at Dungeness Bay (89 in 1992), Snohomish River delta (25 in 1993), Boz Lake (23 in 1992), and Crockett's Lake (23 in 1993). Total counts for the GPS region were variable in spring and autumn (Table 2). This species appears to be less abundant during all seasons in the GPS region than it is at Willapa Bay (Buchanan and Evenson 1997), Grays Harbor (Herman and Bulger 1981), or along coastal beaches (Buchanan 1992).

Killdeer *Charadrius vociferus*

The highest counts for this species occurred during winter when eight sites supported  $\geq 20$  birds in at least one year. The highest count was at Skagit Bay (166 in 1994-1995); other high counts were at Port Susan (75 in 1992-1993, 70 in 1994-1995, 22 in 1990-1991), Lummi Bay (64 in 1993-1994), Skagit Bay (51 in 1993-1994, 40 in 1990-1991, 25 in 1995-1996), Liberty Bay (32 in 1995-1996), Commencement Bay (30 in 1990-1991), Dyes Inlet (27 in 1995-1996), Padilla Bay (25 in 1995-1996, 21 in 1994-1995), and Annas Bay (21 in 1993-1994). There were no sites with  $\geq 20$  birds during spring migration. The highest counts during autumn were at Commencement Bay and Deer Lagoon (35 at each site in 1992), Dyes Inlet (30 in 1993), Dungeness (27 in 1992), Port Gamble (22 in 1993), and Totten Inlet (21 in 1992). The abundance of this species was quite variable among years (Table 2). This species uses upland habitats (e.g., open agricultural lands) that were not generally searched during this project. Consequently, certain sites may support greater numbers of Killdeers.



Killdeer (Photo Dennis Paulson)

### Black Oystercatcher *Haematopus bachmani*

Although this species is not typically associated with estuarine areas, it occurs in habitats such as jetties and rock shorelines adjacent to intertidal mudflats. All sightings were from sites in the NPS and the Strait of Juan de Fuca. The highest counts were from Sequim Bay (12 in the winter of 1995-1996), Oak Bay (nine in the winters of 1992-1993 and 1993-1994), Dungeness Bay (five in spring 1994, three in winter 1995-1996), and Port Angeles Harbor (five in winter 1995-1996, four in winter 1992-1993). Counts of 1-3 birds were made at Bellingham Bay, Chuckanut Bay, Crescent Bay, Crockett's Lake, Kilisut Harbor, and Neah Bay. Most birds were observed during winter (52 in five years), compared to spring (17 in three years) and, particularly, autumn (four in three years). Some of our counts were similar to those reported by Wahl (1996), except that we rarely, if ever, made counts in areas where he noted the greatest numbers of birds (i.e., Crescent Bay, Mummy Rocks, Protection Island, San Juan Channel). In addition, we did not conduct counts in the San Juan Islands, the highest known concentration of breeding season sites in or near our study area (Nysewander 1977).



Black Oystercatcher (Photo Dennis Paulson)

### American Avocet *Recurvirostra americana*

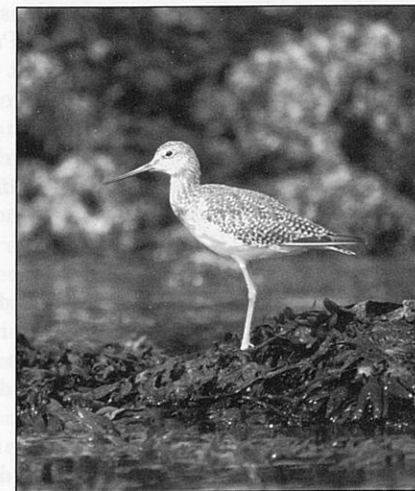
A single bird at Padilla Bay in autumn 1991 was the only record during this study.

### Greater Yellowlegs *Tringa melanoleuca*

Counts of  $\geq 20$  birds were made at ten sites. The highest counts during winter were at Crockett's Lake and Totten Inlet (both had 21 birds in 1990-1991); there were no other winter counts of  $\geq 20$  birds. The highest spring counts were made at Samish Bay (56 in 1994) and at four sites in 1993: Nisqually (40), Totten Inlet (26), Sequim Bay (23), and Birch Bay (20).

High counts during autumn were from Port Susan (47 in 1991), Budd Inlet (36 in 1992), Henderson Inlet (31 in 1992), and Drayton Harbor (21 in 1993). Three points relative to the count data are worth discussing. First, it is likely that the magnitude of counts and the number of sites with high counts during spring do not reflect the actual migration of Greater Yellowlegs in the GPS region.

We believe this to be the case, because substantial movements of birds occur in March (Buchanan 1988b), over 30 days prior to the period of census coverage in the current study. Consequently, some sites above may support larger numbers of birds. Second, we had no counts of  $\geq 20$  birds at Eld Inlet, a site which consistently supports at least this many birds in all seasons and appears to be one of the more important wintering sites for this species in the Pacific Northwest (Buchanan 1988b). We believe the low counts at Eld Inlet resulted from an inability to access the primary foraging and roosting area at this site during the current study. We are unaware whether this was similarly a problem at other sites. Finally, counts at two sites in Southern Puget Sound (Budd Inlet and Henderson Inlet) were much higher than anticipated based on historical data from those sites (Buchanan unpubl. data). The count at Budd Inlet involved birds at a roost on a floating log raft used for part of one day (L. Salzer, pers. comm.). We believe the counts at both sites were either the result of local movements from nearby sites such as Eld Inlet or upland freshwater sites (Buchanan 1988b; L. Carpenter, pers. comm.), or represented rapid movement through the area.



Greater Yellowlegs (Photo Dennis Paulson)

Lesser Yellowlegs *Tringa flavipes*

There were five winter records of this species: four at Crockett's Lake in 1992-1993, two at both Deer Lagoon and Liberty Bay in 1993-1994, and single birds at both Deer Lagoon and Rich Passage in 1992-1993. Surprisingly, there were only six records during spring: Lummi Bay (four in 1993, two in 1994) and single birds at Samish Bay (1991 and 1994), Miller Bay (1993), and Totten Inlet (1991). The species was noted at 14 sites during autumn; the five highest counts were 40 at Port Susan (1991), 13 at Deer Lagoon (1992), 11 at Boz Lake (1992), nine at Kilisut Harbor (1993), and eight at Crockett's Lake (1992). The reason for the species' relative scarcity, compared to earlier autumn counts in the Pacific Northwest (Paulson 1993), is unknown. However, its apparent preference for freshwater habitats may explain the low numbers we report.

Solitary Sandpiper *Tringa solitaria*

Individual Solitary Sandpipers were observed at Commencement Bay (spring 1994), Samish Bay (autumn 1993), and Skagit Bay (autumn 1993). This species is probably more common in freshwater habitats (Paulson 1993).

Willet *Catoptrophorus semipalmatus*

There were six records, all of individual birds, at four sites during the study: Port Angeles Harbor in the winters of 1990-1991, 1992-1993, and 1995-1996; Bellingham Bay during winter 1993-1994; Deer Lagoon during spring 1991; and Drayton Harbor during autumn 1993.

Wandering Tattler *Heteroscelus incanus*

The Wandering Tattler was recorded only twice during the study: one at Port Angeles Harbor in spring 1993 and two there in autumn 1993.

Spotted Sandpiper *Actitis macularia*

During winter, this species was found only at sites in the CSPA region and at a single site in the HC region. Counts of 1-3 birds were made at Totten Inlet, Sinclair Inlet, Commencement Bay, Port Gamble, Budd Inlet, Eld Inlet, Dyes Inlet, and Miller Bay. Spotted Sandpipers are uncommon around Puget Sound during winter (Paulson 1993). Spotted Sandpipers were observed at 12 sites throughout the GPS region during autumn; with the exception of a high count of ten birds at Henderson Inlet, all other counts ranged between one and three. This species was not observed during any of the spring counts.

Whimbrel *Numenius phaeopus*

The Whimbrel was observed at only one site, Port Angeles Harbor, during winter; it was present in each of the survey years except 1994-1995 (four, four, two, and one individuals). Large flocks of Whimbrels were observed during spring 1994 at Padilla Bay (832) and Samish Bay (324). A flock of 23 was at Drayton Harbor in 1993. The species was otherwise noted in very small numbers (1-5 birds), and

totals for all other sites combined never exceeded 11 birds. With the exception of 22 birds at Dungeness in 1992, Whimbrels were rarely encountered during autumn (counts ranging between one and three at four other sites). The autumn passage of adult Whimbrels appears to occur early in the season; this may partially explain the relative scarcity of birds in our counts. In addition, it is possible that the Whimbrel uses a more coastal migration route in autumn (Paulson 1993).

Long-billed Curlew *Numenius americanus*

There were only two records of this species during the study: nine birds at Dungeness Bay in autumn 1992 and one at Drayton Harbor in spring 1993.

Marbled Godwit *Limosa fedoa*

The Marbled Godwit was recorded on six occasions during this study: one at Skagit Bay during winter 1994-1995; one at Dungeness Bay in winter (1995-1996), two there in spring (1993), and one in autumn (1991); two at Lummi Bay (spring 1994); and one at Padilla Bay (spring 1994).

Ruddy Turnstone *Arenaria interpres*

This species has a very limited distribution in the study area. During winter it was observed only at Dungeness Bay (25 in 1992-1993) and Port Angeles (between one and four birds in four winters). The species was observed at these sites during spring (single birds at both sites in 1994 and five at Port Angeles in 1993), as well as at Fidalgo Bay and Kilisut Harbor (singles at both sites). Ruddy Turnstones were most consistently encountered during autumn at Dungeness Bay (9, 21, and 17 in the three years). Between one and three birds were noted at Kilisut Harbor (1993), Birch Bay (1991), Samish Bay (1991), Lummi Bay (1991), and Crockett's Lake (1993) for the only other autumn records from this study. Wahl (1996) considered this a locally occurring species in the GPS region and reported only three counts greater than ten birds. His highest count was from a non-estuarine site (Penn Cove) that we did not survey.

Black Turnstone *Arenaria melanocephala*

Counts  $\geq 100$  during winter were made at two sites: Oak Bay (220 in 1990-1991) and Port Angeles (120 in 1994-1995). Counts of  $\geq 20$  birds were made at six other sites: Kilisut Harbor, Dungeness Bay, Hansville, Port Gamble, Bellingham Bay, and Crescent Harbor. Black Turnstones were observed at only four sites during spring: Kilisut Harbor (100 in 1994), Port Angeles (67 in 1993), Fidalgo Bay (23 in 1991), and Port Gamble (22 in 1993). Their distribution was equally limited during autumn: Kilisut Harbor (45 in 1993), Sekiu River mouth (40 in 1991), Port Angeles (34 in 1993), and Dungeness Bay (34 in 1993). Wahl (1996) did not report this species during spring or autumn; our high counts are similar to those he reported, although he noted the species at several non-estuarine sites (e.g., Penn Cove,

Whale Rocks) that we did not include in the study. Slipp (1943) stated that this species was rare in southern Puget Sound. With the exception of observations at four sites in the northern part of the CSPS, Black Turnstones were found only at Commencement Bay in the southern part of the CSPS (13 and 17 during two winters; three and eight during two autumn counts).

#### Surfbird *Aphriza virgata*

This species was observed at only four sites during winter: Crescent Bay (62 in 1990-1991), Commencement Bay (22 in 1994-1995), Oak Bay (15 in 1990-1991, four in 1993-1994, two in 1994-1995), and Port Angeles Harbor (two in 1993-1994, two in 1994-1995). There were no records from spring, and only two from autumn: Port Angeles Harbor (four in 1993, three in 1992). Wahl (1996) reported this species from numerous non-estuarine sites, but from only one estuarine site that we regularly visited (Padilla Bay).

#### Red Knot *Calidris canutus*

Two birds were observed at Drayton Harbor in spring 1993, one at Hansville in autumn 1991, and eight at Boz Lake in autumn 1992. This species is rarely observed in Washington away from the Pacific coast in any season (Slipp 1943, Paulson 1993).

#### Sanderling *Calidris alba*

Counts  $\geq 20$  birds were made at 16 sites during winter (Table 3); the highest winter counts were made at Dungeness Bay, Kilisut Harbor, Boz Lake, and Hansville. In addition, 145 Sanderlings were observed at Foulweather Bluff (near Hansville) in winter 1994-1995, and 35 were there in winter 1995-1996. This species was less widespread and common during the spring counts when it was recorded at only five sites: Kilisut Harbor (175 in 1993, 72 in 1994), Lummi Bay (100 in 1994), Dungeness Bay (95 in 1994, 21 in 1993), Port Gamble (65 in 1993), and Oak Bay (40 in 1991). Only two sites supported  $\geq 20$  birds during autumn: Dungeness Bay (327 in 1993, 225 in 1991) and Boz Lake (250 in 1992). We were surprised by the lack of observations at Cultus Bay (no observations in five counts) where Van Velzen (1973) reported counts of 150-440 between late November and late February. We have no explanation why our counts were so much lower than those made by Van Velzen. Slipp (1943) stated that this species was rare in southern Puget Sound. Our three records from sites in the northern CSPS support this finding; there were no observations of this species south of Seattle where suitable habitat is essentially absent. Similarly, the species was found only in the extreme northern part of Hood Canal.

#### Semipalmated Sandpiper *Calidris pusilla*

There were three records of this species during our project, all during autumn: single birds at Dungeness Bay (1992) and Snohomish River delta (1993), and two birds at Padilla Bay (1993).



Sanderling (Photo Stan Smith)

**Table 3. High counts of Sanderlings at sites in the Greater Puget Sound region with  $\geq 20$  birds during winter, 1990-1996.**

Site	90-91	92-93	93-94	94-95	95-96
<b>Northern Puget Sound (NPS)</b>					
Lummi Bay	0	9	24	0	58
Skagit Bay	0	0	33	11	6
Snohomish delta	—	17	0	20	13
<b>Central and Southern Puget Sound (CSPS)</b>					
Murden Cove	—	60	—	—	—
Sinclair Inlet	0	75	44	0	37
Yukon Harbor	—	8	5	36	0
<b>Hood Canal (HC)</b>					
Foulweather Bluff Preserve	150	38	11	110	95
Port Gamble	0	98	0	50	75
<b>Strait of Juan de Fuca and Admiralty Inlet (SJF/AI)</b>					
Boz Lake	0	0	150	0	—
Deer Lagoon	—	20	40	0	—
Dungeness Bay	51	190	280	75	1312
Kilisut Harbor	0	160	25	125	94
Pysht delta	—	—	—	—	30
Sekiu delta	—	28	—	—	0
Sequim Bay	0	8	0	0	50



Western Sandpiper *Calidris mauri*

Only eight sites supported  $\geq 100$  birds during winter, and counts at these sites varied substantially among years. The winter high count was at Deer Lagoon where 1500 were present in 1992-1993, 350 in 1993-1994, and 500 in 1994-1995. Conversely, 1120 were at Crockett's Lake in 1994-1995, but only 120 were there in 1992-1993. Other high counts were made at Padilla Bay (615 in 1993-1994, 177 in 1995-1996), Snohomish River delta (500 in 1993-1994), Annas Bay (224 in 1995-1996), Dyes Inlet (220 in 1995-1996), and Totten Inlet (114 in 1995-1996). Twelve sites supported  $\geq 1000$  birds during spring migration; of these, four sites supported  $\geq 10,000$  birds (Table 4). This species was often, but not always, the most abundant spring migrant at the major sites in the GPS region; this was unanticipated because the Western Sandpiper is typically the most numerous species in this region during spring migration (Paulson 1993), and we expected that it would clearly outnumber other shorebirds. A possible explanation for this is that our counts did not always occur during the peak passage of spring migrants. However, the Western Sandpiper is also less abundant here than at other areas in the region (among others, Butler 1994), and it may be that our data reasonably represent the abundance of this species. Additional work is required to resolve this issue. Western Sandpipers were far less common during the autumn counts, although ten sites had counts  $\geq 1000$ , including two counts  $\geq 10,000$  (Table 4). With the exception of counts at Dungeness Bay and Sequim Bay (both SJF/AI) and Totten Inlet (CSPS), all the high migration counts were from sites in the NPS.

Least Sandpiper *Calidris minutilla*

This species was locally distributed and generally uncommon during the winter. Census high counts were from Deer Lagoon (102 in 1993-1994), Fidalgo Bay (36 in 1993-1994, two in 1992-1993), Padilla Bay (ten in 1995-1996), Dyes Inlet (ten in 1995-1996), Port Angeles Harbor (eight in 1990-1991, four in 1993-1994), and Commencement Bay (eight in 1992-1993, seven in 1993-1994, three in 1990-1991). Counts of smaller groups were made at Quilcene Bay (six), Henderson Inlet (two), and Hamma Hamma River delta (one), all in 1990-1991, and at Samish Bay (one) in 1995-1996. The Least Sandpiper appeared to be slightly more abundant, although still locally distributed, during spring migration; the three highest counts were from Skagit Bay (279 in 1993, 89 in 1994) and Crockett's Lake (254 in 1994). In autumn the species was considerably more widespread and abundant, with high counts  $\geq 100$  at Crockett's Lake (838 in 1992), Skagit Bay (399 in 1992), Drayton Harbor (219 in 1993), Boz Lake (208 in 1992), and Padilla Bay (203 in 1993).

Baird's Sandpiper *Calidris bairdii*

This species was noted on only four occasions, all during autumn



Western Sandpipers (Photo Stan Smith)

**Table 4. High counts of Western Sandpipers at sites in the Greater Puget Sound region with  $\geq 1000$  birds during spring and/or autumn, 1991-1994. Data for spring counts are from aerial counts (Northern Puget Sound) and ground-based counts (elsewhere); all autumn count data are from ground-based counts.**

Site	Spring			Autumn		
	1991	1993	1994	1991	1992	1993
<b>Northern Puget Sound (NPS)</b>						
Bellingham Bay	1382	38	1642	—	465	—
Birch Bay	—	100	475	2227	75	0
Drayton Harbor	497	359	7015	474	99	6381
Lummi Bay	1453	334	2000	160	20	—
Padilla Bay	10995	4134	12009	1460	2055	400
Port Susan	15061	6715	18880	50000	—	555
Samish Bay	18617	742	18637	1250	2419	174
Skagit Bay	—	10048	9124	491	12001	330
Snohomish delta	175	38	952	700	1600	150
<b>Central and Southern Puget Sound (CSPS)</b>						
Totten Inlet	950	1675	—	1500	360	491
<b>Strait of Juan de Fuca and Admiralty Inlet (SJF/AI)</b>						
Crockett's Lake	108	418	2286	250	1845	297
Deer Lagoon	263	1000	400	95	12	33
Dungeness Bay	—	1200	3091	1450	600	525
Sequim Bay	2080	2830	1420	343	0	43

migration: Snohomish River delta (three in 1991), Dungeness Bay (two in 1991), Hansville (two in 1993), and Kilisut Harbor (two in 1993).

**Pectoral Sandpiper** *Calidris melanotos*

A single bird at Hansville in autumn 1992 was the only record from this project.

**Rock Sandpiper** *Calidris ptilocnemis*

With the exception of a flock of 20 at Crescent Bay in winter 1990-1991 and a single bird at Sinclair Inlet in autumn 1993, all records of this species were from Port Angeles Harbor (two, four, and three birds in the winters of 1990-1991, 1992-1993, and 1993-1994, respectively, and four in spring 1993). This species is very uncommon in the GPS region (Paulson 1993). Wahl's (1996) observations occurred in winter; his high counts were at Bird Rocks and Crescent Bay (eight at each site).

**Dunlin** *Calidris alpina*

The Dunlin was by far the most abundant species in the GPS region during winter. Counts of  $\geq 1000$  birds were made at 20 sites (Table 5) during the study, and winter totals ranged between about 50,000 and 80,000 (Table 2). Counts were extremely variable among years at many sites (Table 5). In all years, the Dunlin comprised over 90% of the total population of shorebirds in the region (range 90.7-96.3%, Evenson and Buchanan 1995). We observed a steady increase in numbers during the five winters (Table 2). However, our study was not designed to measure population trends, and we do not have the appropriate information to make inferences in this regard. This species was also very abundant during spring migration, and at some sites in certain years it was more abundant than the Western Sandpiper (Table 5; see account for the latter species, above). The autumn censuses occurred long before the large flocks of wintering birds arrived in the area, and, as a consequence, the species was observed in low numbers and at only six sites in the three years: Lummi Bay (45 in 1992), Fidalgo Bay (32 in 1993), Port Susan (20 in 1991, three in 1992), Oak Bay (20 in 1992), Dyes Inlet (four in 1991), and Padilla Bay (four in 1992).

**Stilt Sandpiper** *Calidris himantopus*

A single bird at Hansville in autumn 1993 was the only record from this study.

**Buff-breasted Sandpiper** *Tryngites subruficollis*

A flock of four was observed at Dungeness Bay in autumn 1991. This species is rare in western Washington, particularly in the GPS region (Slipp 1943, Paulson 1993).

**Short-billed Dowitcher** *Limnodromus griseus*

The only winter record of the Short-billed Dowitcher was of a single bird at Dungeness Bay in 1995-1996. This species is rarely encountered in Washington during winter (Buchanan 1992, Paulson 1993).



Dunlin (Photo Dennis Paulson)

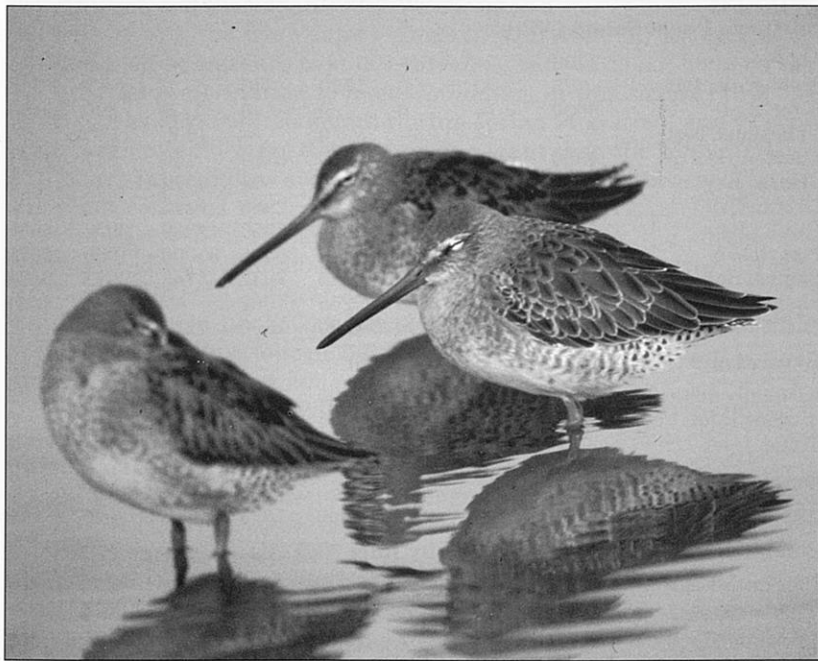
**Table 5. High counts of Dunlins at sites in the Greater Puget Sound region with  $\geq 1000$  birds during winter and/or spring, 1990-1996. Data for Northern Puget Sound sites (except for Ala Spit) are from aerial counts in all years except winter 1990-1991. All other data are from ground-based counts.**

Site	Winter					Spring		
	90-91	92-93	93-94	94-95	95-96	1991	1993	1994
<b>Northern Puget Sound (NPS)</b>								
Ala Spit	1100	—	—	—	—	—	—	—
Bellingham Bay	275	70	0	1920	340	0	67	318
Birch Bay	3000	—	0	0	0	0	500	437
Chuckanut Bay	—	—	—	0	—	4600	0	10
Drayton Harbor	4800	4950	1300	3850	6320	750	641	1781
Fidalgo Bay	2658	306	—	—	58	3579	—	2
Lummi Bay	2890	2490	1280	3850	2965	1442	596	200
Padilla Bay	5000	4250	5297	11550	8555	12339	6977	5886
Port Susan	1065	14080	31037	20795	20495	35000	11990	16615
Samish Bay	15000	7000	8500	3345	7032	8743	12973	6873
Skagit Bay	7500	10650	13750	29255	17962	—	11167	1431
Snohomish delta	—	1130	720	4200	1090	1217	182	1848
<b>Central and Southern Puget Sound (CSPS)</b>								
Nisqually delta	—	2400	425	1100	1850	—	500	675
Sinclair Inlet	1000	350	74	325	600	—	—	0
Totten Inlet	3100	—	3940	3780	1026	1100	2100	—
<b>Hood Canal (HC)</b>								
Annas Bay	—	250	120	500	1378	—	36	13
<b>Strait of Juan de Fuca and Admiralty Inlet (SJF/AI)</b>								
Crockett's Lake	0	0	25	800	1200	0	262	187
Dungeness Bay	840	460	1200	722	2206	—	675	1386
Port Angeles Hbr.	72	1771	52	11	373	—	83	65
Sequim Bay	134	32	895	950	4640	510	1905	72

Most dowitchers observed in estuarine habitats during spring are likely this species (Paulson 1993). The high count of Short-billed Dowitchers during spring was at Totten Inlet (22 in 1993). However, large numbers of unidentified dowitchers were also observed at Sequim Bay (281 in 1993), Port Susan (70 in 1993), and Drayton Harbor (50 in 1993), and it is possible that many of these were Short-billed Dowitchers. Unidentified dowitchers were slightly more widespread during autumn. Dungeness Bay usually had high numbers of dowitchers (300 in 1991, 78 in 1993, 36 in 1992). Other counts of  $\geq 20$  birds were made at Samish Bay (80 in 1991, 20 in 1992), Crockett's Lake (46 in 1991, 43 in 1992), Liberty Bay (33 in 1993), Deer Lagoon (32 in 1991, 13 in 1992), and Boz Lake (26 in 1992).

Long-billed Dowitcher *Limnodromus scolopaceus*

Much to our surprise, only four counts  $\geq 20$  birds were recorded during winter: at Deer Lagoon (125 in 1992-1993, 34 in 1993-1994), Skagit Bay (54 in 1994-1995), and Cultus Bay (28 in 1994-1995). Smaller flocks of Long-billed Dowitchers were also seen at a number of sites during the five winters: Boz Lake, Lynch Cove, Nisqually delta, Port Angeles Harbor, Snohomish River delta, Thorndyke Bay, and Totten Inlet. This species was less common during spring; identifications based on call notes were made at three estuarine sites:



Long-billed Dowitchers (Photo Dennis Paulson)

Dungeness Bay, Lummi Bay, and Padilla Bay (high counts 1-5). Birds identified to species were also recorded at Deer Lagoon (high count six), a site with brackish water conditions. A flock of 70 dowitchers was noted at Crockett's Lake, another non-estuarine site, in 1994, and 46 were at Deer Lagoon in 1993. The Long-billed Dowitcher was also uncommon in autumn; the high count was 25 at Deer Lagoon in 1992. The species was recorded at only five other sites in autumn: Boz Lake, Hansville, Kilisut Harbor, Sequim Bay, and Totten Inlet (high counts 1-14). Our migration counts are much lower than those reported by Paulson (1993).

Common Snipe *Gallinago gallinago*

This species was observed only during winter. The highest counts were at Skagit Bay (15 in both 1990-1991 and 1994-1995, 11 in 1992-1993) and at Port Susan (nine in 1994-1995). This species is likely more common than indicated by these counts and is under-represented in our data (Table 2), because it occurs in saltmarshes and other habitats not well sampled during this project.

Red-necked Phalarope *Phalaropus lobatus*

This species was noted only during winter and autumn. We had a winter record from Dungeness Bay (18 in 1995-1996) and autumn records from Hansville (400 in 1993 and six in 1991), Crockett's Lake



Common Snipe (Photo Netta Smith)

(seven in 1993), and Deer Lagoon (one in 1991). The records reported by Wahl (1996) are all from deep-water areas in the SJF/AI.

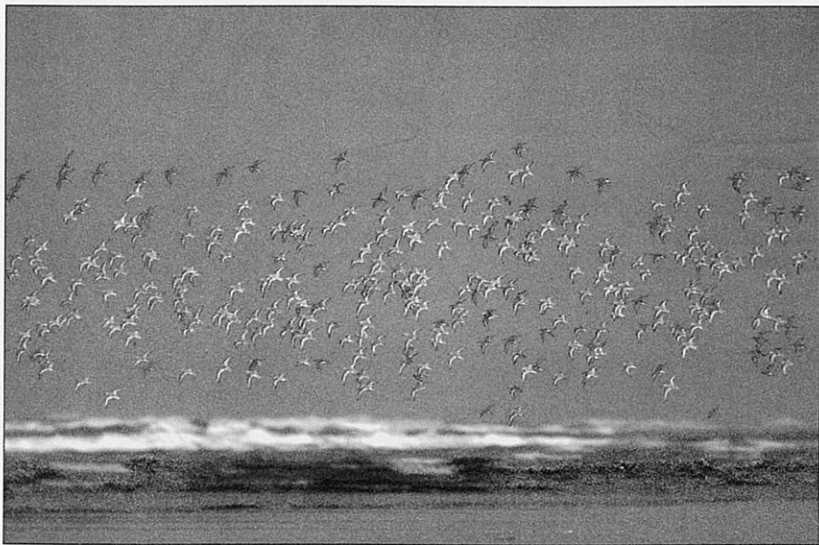
*Red Phalarope Phalaropus fulicaria*

A flock of 30 observed at Neah Bay in winter 1995-1996 was the only record from this study.

#### SEASONAL ABUNDANCE OF SHOREBIRDS

*Winter.* We visited 66 of 69 sites during the five winter survey seasons (Appendix 1; Evenson and Buchanan 1995). A total of 23 sites supported  $\geq 1000$  birds during one or more years of our study. Despite this large number of sites, only eight of them supported  $\geq 1000$  birds in all five winter counts (Table 6; see Evenson and Buchanan 1995). Most (83%) of the sites with  $\geq 1000$  birds were known after the first two years of the study (Evenson and Buchanan 1995), and single new sites were identified each of the last two years (Table 6). It is noteworthy, however, that the vast majority of shorebirds occurred at the sites identified the first two years. Counts of  $> 20,000$  shorebirds were made at Port Susan and Skagit Bay.

There was a substantial amount of variability in counts among years at individual sites (Table 6). The highest counts at those sites with  $\geq 1000$  birds in  $\geq 4$  winters were 1.8-46.6 times higher than low counts at the same sites. This great range in the abundance of shorebirds (primarily due to changes in the abundance of the Dunlin) has been noted elsewhere



Sanderlings, Dunlins, Western Sandpipers, and Semipalmated Plovers  
(Photo Dennis Paulson)

**Table 6. High counts of shorebirds at sites in the Greater Puget Sound region with  $\geq 1000$  birds during winter, 1990-1996. Data are from aerial counts (Northern Puget Sound) and ground-based counts (elsewhere).**

Site	High count from		
	90-91 - 93-94 <sup>a</sup>	94-95	95-96
<b>Northern Puget Sound (NPS)</b>			
Ala Spit	1100	—	—
Bellingham Bay	3117	1920	340
Birch Bay	3000	15	820
Drayton Harbor	6911	3858	6320
Fidalgo Bay	3658	0	58
Lummi Bay	5126	110	2965
Padilla Bay	10802	11572	8732
Port Susan	31050	20983	20495
Samish Bay	14000	3352	7032
Skagit Bay	19349	29606	17962
Snohomish delta	3507	2355	1090
<b>Central and Southern Puget Sound (CSPS)</b>			
Nisqually delta	2404	1117	1850
Sinclair Inlet	1000	326	639
Totten Inlet	4162	3911	1140
<b>Hood Canal (HC)</b>			
Annas Bay	264	513	1450
<b>Strait of Juan de Fuca and Admiralty Inlet (SJF/AI)</b>			
Boz Lake	1639	202	0
Crockett's Lake	3000	1145	1203
Cultus Bay	40	1768	120
Deer Lagoon	1646	552	0
Dungeness Bay	1986	1006	3814
Kilisut Harbor	1079	682	420
Port Angeles Harbor	1945	151	534
Sequim Bay	1039	1133	4899

<sup>a</sup> From Evenson and Buchanan (1995).

in Washington (Buchanan 1988a, Buchanan and Evenson 1997) and at other estuaries in the Pacific Flyway (Shuford et al. 1989, Colwell 1994). Research is required to identify the factors influencing these patterns (see discussion below).

The total abundance of shorebirds varied substantially in the GPS region among years. By combining aerial totals from sites in the NPS (except for 1990-1991, when we did not make aerial counts) with ground-

**Table 7. Comparison of shorebird counts at three Northern Puget Sound sites during and after two major storm events in the region in winter 1990-1991. Low counts from other years of the study are provided for comparison.**

Site	Count During Storm	Count >20 Days After Storm	Low Count in Other Years of This Study
Padilla Bay	299	5000	4250
Port Susan	1094	—	14240
Skagit Bay	1243	9000	13750

based totals at sites in the other regions, we estimated the abundance of shorebirds for each winter as follows: 52,149 in 1990-1991; 59,495 in 1992-1993, 68,965 in 1993-1994; 77,035 in 1994-1995; and 83,051 in 1995-1996. This great range in the total number of overwintering shorebirds was primarily a function of changes in the annual abundance of the Dunlin, which comprised >90% of the shorebird population (Table 5). The variability in annual high counts of all other species combined was substantial, although to a far lesser degree (2,006 in 1990-1991; 4,193 in 1992-1993; 3,510 in 1993-1994; 3,240 in 1994-1995; and 4,259 in 1995-1996).

We also documented substantial within-season variation in site counts. We believe this variation in counts results from mortality, emigration, and movements within the NPS. For example, some counts in 1990-1991 at the major sites in the NPS were made shortly after two severe storm events (a flood that inundated vast estuarine areas followed immediately by record low temperatures that froze the flood waters over fields, saltmarshes, and part of the intertidal area in the NPS). These counts were far lower than counts in other winters (Table 7), possibly because of storm-related displacement and/or mortality of large numbers of shorebirds. By the end of winter, however, greater numbers of birds were present at several sites.

We also noted substantial differences in the abundance of shorebirds at individual sites over the course of relatively mild winters. For example, on 31 December 1994, we estimated 20,820 shorebirds at Port Susan and 5,135 at Padilla Bay. Upon revisiting these sites on 4 February 1995, we estimated 7,970 and 11,550 shorebirds, respectively, at the two sites. Counts at Skagit Bay and Samish Bay on these two flights were virtually the same on both dates. During our aerial counts in the NPS, we occasionally observed flocks of shorebirds moving among sites or using upland habitats such as fallow agricultural lands. Such movements and use of upland habitats were noted previously by Brennan et al. (1985) and have been documented in other regions (e.g., Warnock et al. 1995). These movements appear to be a common and significant component of shorebird ecology in the NPS. Furthermore, we suspect that estuaries in southern coastal British Columbia are part of this network

**Table 8. High counts of shorebirds at sites in the Greater Puget Sound region with  $\geq 1000$  birds during spring, 1991-1994. Data are from aerial counts (Northern Puget Sound) and ground-based counts (elsewhere).**

Site	1991	1993	1994
<b>Northern Puget Sound (NPS)</b>			
Bellingham Bay	1394	250	1933
Chuckanut Bay	4663	—	3215
Drayton Harbor	1251	1000	8827
Fidalgo Bay	4027	—	711
Lummi Bay	3028	930	2353
Padilla Bay	23347	11111	30944
Port Susan	50103	18705	2384
Samish Bay	27527	13715	9006
Skagit Bay	—	21215	14113
Snohomish delta	1396	2950	4520
<b>Central and Southern Puget Sound (CSPS)</b>			
Nisqually delta	—	575	1690
Totten Inlet	2264	3776	—
<b>Strait of Juan de Fuca and Admiralty Inlet (SJF/AI)</b>			
Crockett's Lake	118	680	2805
Deer Lagoon	446	1084	1171
Dungeness Bay	—	1875	4680
Oak Bay	2886	1240	1605
Sequim Bay	2643	4735	1515

of sites, necessitating their inclusion in future regional studies of shorebird ecology. Although the reason for these movements is unknown, future monitoring efforts in this area will need to account for such movements and use of upland habitats.

*Spring.* We visited 49 sites during the three years of this study (Appendix 1). A total of 18 sites supported  $\geq 1000$  shorebirds during the three spring counts (Table 8), although the number of sites supporting this many birds ranged from 10-15 annually. Counts of >20,000 were made at four sites: Padilla Bay, Port Susan, Samish Bay, and Skagit Bay.

Variability in counts also characterized the spring migration period (Table 8). It seems likely that this difference results from changes in the abundance of shorebirds actually moving through the region, as well as the possibility that our counts in some years did not occur on the date(s) of peak passage. Obviously, efforts to monitor shorebirds during spring migration must be designed to determine accurately the abundance of

**Table 9. High counts of shorebirds at sites in the Greater Puget Sound region with  $\geq 1000$  birds during autumn, 1991-1993. Data are from ground-based counts.**

Site	1991	1992	1993
<b>Northern Puget Sound (NPS)</b>			
Birch Bay	2253	76	1
Drayton Harbor	491	240	6646
Padilla Bay	1479	2072	613
Port Susan	50080	10	656
Samish Bay	1398	2665	234
Skagit Bay	970	12413	370
Snohomish delta	—	1613	188
<b>Central and Southern Puget Sound (CSPS)</b>			
Totten Inlet	1572	445	604
<b>Strait of Juan de Fuca and Admiralty Inlet (SJF/AI)</b>			
Boz Lake	135	1274	127
Crockett's Lake	306	2756	371
Dungeness Bay	2748	1078	1249

large concentrations of birds that, for the most part, are moving very rapidly through the area.

*Autumn.* We visited 52 sites during the three autumn survey seasons (Appendix 1). Only 11 sites supported  $\geq 1000$  shorebirds during the three years of this study, and the annual number of such sites ranged from two to seven. Not surprisingly, counts differed substantially among years (Table 9). Autumn migration occurs over a very protracted period, and the variability in counts is influenced by the timing of migration of the various age and sex classes of the most abundant species (e.g., Western Sandpiper). Long-term monitoring efforts should be designed to target certain species or age/sex classes or should be conducted over a longer span to encompass the greater migration period.

#### IMPORTANT AREAS

Although 26 sites supported  $\geq 1000$  birds during one or more seasonal count (Tables 6, 8, 9), counts of  $\geq 20,000$  were made at only four sites (Padilla Bay, Port Susan, Samish Bay, Skagit Bay). These sites qualify for Western Hemisphere Shorebird Reserve Network status (Harrington and Perry 1995). Moreover, these four sites combined annually supported 52-93% of all overwintering shorebirds in the GPS region. There were no other sites that supported as many as 10,000 birds at any season during this study, although we have records exceeding

this total in other years ( $>10,000$  at Totten Inlet in April 1985, Buchanan 1988a; about 100,000 at Crockett's Lake in November 1987 and about 20,000 there on 8 November 1989, A. Arnold, pers. comm.; large flocks at Drayton Harbor, Wahl 1995). Despite the obvious importance of the four major sites, it is noteworthy that 22-48% of all shorebirds occurred at other sites in three of the five winters. Similar patterns were observed during migration periods. These dramatic spatial and temporal fluctuations in abundance indicate that shorebird conservation must be addressed over the GPS region as a whole.

#### ACKNOWLEDGMENTS

We appreciate the efforts of the many people who volunteered to count shorebirds or to provide other support for this project: D. Adams, P. Alexander, J. Almack, M. Anderson, Becky Applegate, Bill Applegate, K. Applegate, Y. Applegate, H. Armstrong, A. Arnold, N. Arnold, S. Ball, H. Ballash, L. Barnes, C. Batchelder, D. Batchelder, A. Beelik, S. Beelik, J. Bent, M. Bertram, F. Beyer, F. Bird, B. Blackie, G. Bletsch, T. Bock, B. Boekelheide, Y. Bombardier, D. Bottles, K. Brady, A. Brenaman, L. Brenaman, D. Brock, K. Brown, J. Burch, S. Burch, G. Buschmann, A. Calkins, A. Campbell, Lanny Carpenter, Linda Carpenter, J. Carroll, K. Carroll, J. Carson, C. Chappell, T. Chestnut, H. Christenson, S. Christenson, A. Clair, L. Cook, P. Cozine, T. Cyra, L. Daugert, M. Davison, J. DeGroot, M. Dewey, D. Doss, R. Doubt, C. Downing, S. Downing, D. Drummond, J. Duemmel, J. DuVall, L. D'Veck, E. Edens, J. Edwards, I. Eisenhart, J. Ellingboe, B. Ellis, S. Ellis, D. Erickson, B. Escoubas, J. Flavin, J. Fletcher, P. Fletcher, J. Flynn, D. Fowler, J. Friars, G. Gandy, G. Geis, G. Gerds, W. Gible, S. Giles, P. Gill, L. Grace, M. Gray, K. Green, P. Green, D. Gudaitis, J. Haegele, S. Haegele, B. Hamblin, L. Hanaw, M. Hatheway, J. Hein, D. Helseth, S. Herman, H. Hoekstra, E. Hoffman, L. Hofstrand, C. Howard, M. Hukari, E. Hunn, K. Hunt, D. Hutchinson, K. Jacobsen, D. Jennings, B. Jensen, J. Jensen, S. John, S. Johnston, M. Jones, C. Kaull, Kathy Kemper, Kraig Kemper, M. Klope, D. Knoke, E. Kreidler, R. Kuntz, B. LaBar, N. Ladenburger, E. Larsen, E. Larson, G. Lenhart, P. Little, J. Lloyd, E. Lucas, J. Lucas, J. Lyles, D. McCabe, D. McFaull, D. McNeely, J. Malvitch, K. Manning, J. Meche, P. Meehan-Martin, D. Meister, R. Merrick, M. Midkiff, T. Mohagen, M. Moon, J. Morgan, R. Morgan, M. Muller, S. Murray, R. Muskat, J. Nelson, V. Nelson, C. Nichols, D. Norman, J. Norton, R. Norton, D. Nysewander, J. Oakland, H. Opperman, M. Palmer, J. Partlow, N. Partlow, F. Patterson, H. Pederson, F. Peterson, S. Petrie, J. Pretare, B. Price, A. Randle, L. Randolph, S. Ray, A. Rebollo, M. Reese, J. Reid, S. Richardson, K. Rigg, P. Roberts, M. Roening, N. Salvadelena, L. Salzer, R. Sanders, H. Sargo, Kerry Scarbrough, Kirk Scarbrough, T. Schooley, M. Schulze, M. Scuderi, S. Scuderi, F. Sears, V. Shanon, F. Sharpe, D. Smith,

M. Smith, S. Smith, C. Spaw, T. Spencer, B. Stanton, E. Stanton, M. Stapp, J. Stein, P. Sullivan, B. Sundstrom, J. Swingle, J. Takekawa, F. Tepfer, R. Thorn, S. Trevathan, B. Tweit, H. Vail, L. Vail, J. van Niel, S. van Niel, V. Vesterby, L. Vicencio, R. Wahl, T. Wahl, G. Walker, S. Wallace, G. Walter, J. Wiggers, K. Wiggers, T. Williams, J. Winkler, M. Wright, K. Wuerth, and T. Young.

J. Cabbage, R. Kerns, and E. Nystuen were our capable pilots. We also thank everyone at Pearson Air and Tumwater Flight Service for their assistance. T. Cyra and S. Herman each helped with a single flight. We thank K. Rasmussen for coordinating the ground counts in winter 1995-1996. D. Nysewander facilitated funding support for two years of winter counts. Funding or other support for this five-year project was provided by Point Reyes Bird Observatory, Washington Department of Fish and Wildlife, and Cascadia Research Collective. We thank D. Paulson and T. Wahl for making comments that improved the manuscript. This is Point Reyes Bird Observatory Contribution number 816.

#### LITERATURE CITED

- Brennan, L.A., Buchanan, J.B., Herman, S.G., and Johnson, T.M. 1985. Interhabitat movements of wintering Dunlins in western Washington. *Murrelet* 66:11-16.
- Buchanan, J.B. 1988a. The abundance and migration of shorebirds at two Puget Sound estuaries. *Western Birds* 19:69-78.
- Buchanan, J.B. 1988b. Migration and winter populations of Greater Yellowlegs, *Tringa melanoleuca*, in western Washington. *Canadian Field-Naturalist* 102:611-616.
- Buchanan, J.B. 1992. Winter abundance of shorebirds at coastal beaches of Washington. *Washington Birds* 2:12-19.
- Buchanan, J.B. and J.R. Evenson. 1997. Abundance of shorebirds at Willapa Bay, Washington. *Western Birds* 28:158-168.
- Butler, R.W. 1994. Distribution and abundance of Western Sandpipers, Dunlins, and Black-bellied Plovers in the Fraser River estuary. In *Abundance and distribution of estuarine birds in the Strait of Georgia, British Columbia* (R.W. Butler and K. Vermeer, eds.), pp. 18-23. Canadian Wildlife Service, Occasional Paper No. 83. Ottawa.
- Colwell, M.A. 1994. Shorebirds of Humboldt Bay, California: abundance estimates and conservation implications. *Western Birds* 25:137-145.
- Evenson, J.R. and J.B. Buchanan. 1995. Winter shorebird abundance at Greater Puget Sound estuaries: recent census results and identification of potential monitoring sites. In *Puget Sound Research '95* (E. Robichaud, ed.), pp. 647-657. Puget Sound Water Quality Authority. Olympia, Washington.
- Harrington, B. and E. Perry. 1995. Important shorebird staging sites meeting Western Hemisphere Shorebird Reserve Network criteria in the United States. U.S.D.I. Fish and Wildlife Service.
- Herman, S.G. and J.B. Bulger. 1981. Distribution and abundance of shorebirds during the 1981 spring migration at Grays Harbor, Washington. U.S. Army Corps of Engineers, contract report DACW67-81-M-0936. Seattle.
- Howe, M.A., P.H. Geissler, and B.A. Harrington. 1989. Population trends of North American shorebirds based on the International Shorebird Survey. *Biological Conservation* 49:185-199.
- Morrison, R.I.G., C. Downes, and B. Collins. 1994. Population trends of shorebirds on fall migration in eastern Canada. *Wilson Bulletin* 106:431-447.
- Nysewander, D.R. 1977. Reproductive success of the Black Oystercatcher in Washington state. M.S. thesis. University of Washington, Seattle.
- Page, G.W. and R.E. Gill, Jr. 1994. Shorebirds of western North America: late 1800s to late 1900s. *Studies in Avian Biology* 15:285-309.
- Paulson, D. 1993. Shorebirds of the Pacific Northwest. University of Washington Press. Seattle.
- Shuford, W.D., G.W. Page, J.G. Evens, and L.E. Stenzel. 1989. Seasonal abundance of waterbirds at Point Reyes: a coastal California perspective. *Western Birds* 20:137-265.
- Slipp, J.W. 1943. Notes on the shore birds of Washington. *Condor* 45:197-199.
- Van Velzen, A.C. 1973. Seasonal fluctuations of sandpipers in western Washington. *Murrelet* 54:1-3.
- Wahl, T.R. 1995. Birds of Whatcom County: status and distribution. The Author. Bellingham, Washington.
- Wahl, T.R. 1996. Waterbirds in Washington's inland marine waters: some high counts from systematic censusing. *Washington Birds* 5:29-50.
- Warnock, N., G.W. Page, and L.E. Stenzel. 1995. Non-migratory movements of Dunlins on their California wintering grounds. *Wilson Bulletin* 107:131-139.



Pectoral Sandpiper (Photo Kevin Aanerud)

**Appendix 1. List of sites where shorebird surveys were conducted, 1991-1996. Survey coverage during the winters of 1990-1991 through 1993-1994 is summarized in Evenson and Buchanan (1995); sites visited only in those winters are also listed in this table, for completeness.**

	Winter		Spring			Autumn		
	94-95	95-96	1991	1993	1994	1991	1992	1993
<b>Northern Puget Sound (NPS)</b>								
Ala Spit						•	•	
Bellingham Bay	•	•	•	•	•	•	•	•
Birch Bay	•	•	•	•	•	•	•	•
Chuckanut Bay	•		•	•	•			
Drayton Harbor	•	•	•	•	•	•	•	•
Fidalgo Bay	•	•	•	•	•			
Lummi Bay	•	•	•	•	•	•	•	•
Oak Harbor								
Padilla Bay	•	•	•	•	•	•	•	•
Port Susan	•	•	•	•	•	•	•	•
Samish Bay	•	•	•	•	•	•	•	•
Similk Bay							•	
Skagit Bay	•	•		•	•	•	•	•
Snohomish delta	•	•	•	•	•	•	•	•
Tulalip Bay	•	•	•			•		•
<b>Central and Southern Puget Sound (CSPS)</b>								
Budd Inlet	•	•		•	•	•	•	
Burley Lagoon						•		
Commencement Bay	•	•		•	•	•	•	•
Dyes Inlet	•	•				•	•	•
Eagle Harbor								
Eld Inlet	•	•		•	•	•	•	•
Henderson Inlet		•			•	•	•	
Liberty Bay	•	•		•				•
Miller Bay	•	•				•		•
Murden Cove								
Nisqually delta	•	•		•	•		•	
North Bay	•			•				
Oakland Bay						•		
Rocky Bay	•			•				
Sinclair Inlet	•	•			•	•	•	•
Skookum Inlet								
Totten Inlet	•	•	•	•		•	•	•
Vaughn Bay	•			•				
Yukon Harbor	•	•		•	•	•	•	•

**Appendix 1 (continued).**

	Winter		Spring			Autumn		
	94-95	95-96	1991	1993	1994	1991	1992	1993
<b>Hood Canal (HC)</b>								
Annas Bay	•	•		•	•	•	•	•
Bywater Bay	•	•	•	•	•	•	•	•
Coon Bay	•	•						
Dosewallips delta				•		•	•	•
Foulweather Bluff Pres.	•	•	•			•	•	•
Duckabush delta				•				•
Hamma Hamma delta								•
Lynch Cove	•			•				•
Port Gamble	•	•		•		•	•	•
Quilcene Bay	•	•		•	•	•	•	•
Seabeck Bay	•	•						•
Squamish Harbor	•	•		•	•			•
Tarboo Bay	•	•		•	•	•	•	•
Thorndyke Bay								•
<b>Strait of Juan de Fuca and Admiralty Inlet (SJF/AI)</b>								
Boz Lake	•	•		•	•	•	•	•
Clallam Bay		•						
Crescent Bay		•						
Crockett's Lake	•	•	•	•		•	•	•
Cultus Bay	•	•		•	•	•	•	•
Deer Lagoon	•	•	•	•	•	•	•	•
Discovery Bay	•	•	•	•	•		•	•
Dungeness Bay	•	•		•	•	•	•	•
Elwha delta		•						
False Bay						•		
Freshwater Bay		•						
Kilisu Harbor	•	•		•	•		•	•
Neah Bay		•						
Oak Bay		•	•	•	•	•	•	•
Port Angeles Harbor	•	•		•	•	•	•	•
Port Ludlow	•	•			•		•	•
Protection Island								
Pysht delta		•						
Sekiu delta		•		•		•		
Sequim Bay	•	•	•	•	•	•	•	•
Twin Rivers Bay		•						



**Appendix 2. Dates of shorebird counts at sites in the Greater Puget Sound region, 1990-1996. Supplemental counts conducted in 1995-1996 did not coincide with an aerial count and were not included in this table.**

Season and Year	All Greater Puget Sound Sites	Northern Puget Sound Sites	Northern Puget Sound Aerial Counts
<b>Winter</b>			
90-91	15 Dec-14 Feb	15 Dec-14 Feb	No aerial count
92-93	15 Nov-31 Dec	20-27 Dec	5 Dec
93-94	27 Nov-5 Dec	27 Nov-5 Dec	2 Dec
	18 Dec-2 Jan	18 Dec-2 Jan	16 Jan
94-95	17 Dec-3 Jan	18 Dec-2 Jan	31 Dec
	28 Jan-9 Feb	31 Jan-8 Feb	4 Feb
95-96	16-30 Dec	23-30 Dec	27 Dec
<b>Spring</b>			
1991	26-28 Apr	26-28 Apr	No aerial count
1993	20-30 Apr	24-27 Apr	25 Apr
1994	28 Apr-3 May	30 Apr-3 May	30 Apr
<b>Autumn</b>			
1991	19 Aug-4 Sep	19 Aug-2 Sep	2 Sep
1992	2-16 Aug	8-15 Aug	8 Aug
1993	7-22 Aug	14-22 Aug	14 Aug

*Manuscript received 4 September 1997*

## POTENTIAL SNOWY PLOVER HABITAT IN EASTERN WASHINGTON

Joseph B. Buchanan, Lori J. Salzer, Frederick C. Dobler,  
Paula Mertz, Jay McConnaughey, and Jerry Hickman  
*Washington Department of Fish and Wildlife*  
600 Capitol Way North, Olympia, Washington 98501

The Snowy Plover (*Charadrius alexandrinus*) is widely distributed throughout western North America (American Ornithologists' Union 1983) and appears to be fairly common on alkali playas in the Great Basin (Page et al. 1991). The coastal population is considered threatened, however, due to loss and disturbance of nesting sites (U.S. Department of the Interior 1993). Recent surveys in the western Great Basin indicate that Snowy Plovers are more common there than previously thought (Herman et al. 1988), suggesting that our knowledge of Snowy Plover distribution and abundance in this remote region is a function of survey coverage.

There have been no systematic efforts to search for Snowy Plovers or to determine whether suitable habitat exists in eastern Washington, an information gap noted by Page et al. (1991). There are at least three records of Snowy Plovers from eastern Washington: 1) a single bird at Reardan, Lincoln County, 28 May 1967 (Weber and Larrison 1977); 2) two birds at Goose Island on Banks Lake, spring 1985 (R. Friesz, pers. comm.); and 3) a single bird at the Walla Walla River mouth on 27-28 April 1987 (Rogers 1988). Given the lack of survey coverage in the region and the possibility that Snowy Plovers might occur at remote sites, we visited candidate sites in eastern Washington to search for these birds and to assess habitat conditions at those sites.

### STUDY AREA AND METHODS

Using various maps of the region, we identified lakebed and shoreline areas in the Columbia Basin where suitable habitat for Snowy Plovers might exist. Throughout the interior portion of its range, this species occurs on or adjacent to alkali lakebeds (Page and Stenzel 1981, Herman et al. 1988, Paton and Edwards 1990). Given this apparent preference for broad expanses of alkaline shoreline, we visited any alkaline or intermittent lakebed sites identified through our map search.

We conducted site visits 2 June-24 July in 1992, and 15 May-14 July in 1993. Several additional areas were visited in July 1985 (E. Cummins, pers. comm.) and April 1987 (Buchanan). At each site we recorded descriptive information on the presence or absence of water; slope of the shoreline (slope less than or greater than 10%); whether the substrate was wet, dry and hard-packed (with or without deep cracks), or dry with loose alkali crust; a qualitative assessment of brine fly (*Ephydra* spp.)

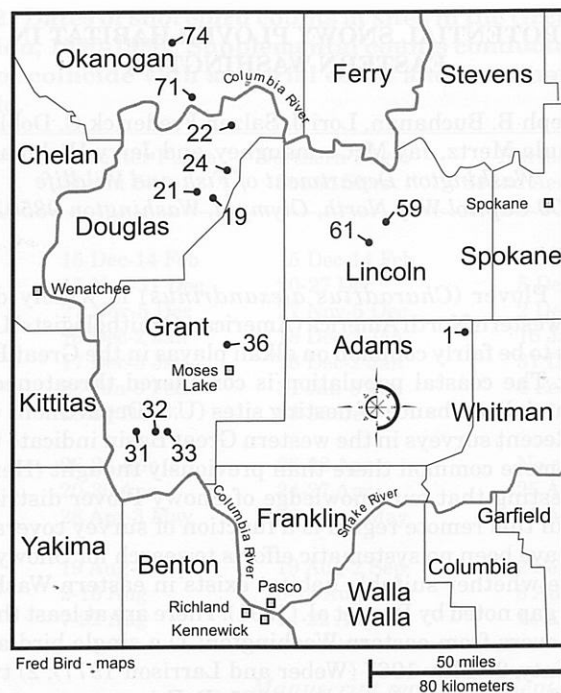


Figure 1. Sites with suitable alkaline habitat for Snowy Plovers. Location numbers refer to Table 1.

abundance; and the relative degree of site disturbance. We categorized the sites into the seven following types: 1) bare or largely vegetation-free alkali playas (i.e. shoreline slope was <10%), 2) intermittent creeks in flat, open terrain, 3) lakes with shorelines of >10% shoreline slope, 4) small, intermittent ponds with alkaline shorelines, 5) vegetated alkali playas, 6) potholes, and 7) sites converted to agriculture. Based on our understanding of habitats used by Snowy Plovers in the western Great Basin (Herman et al. 1988), we considered only bare alkali playas and intermittent streams (if alkali present) suitable for plovers in our search area.

## RESULTS

We visited 93 sites in Adams, Douglas, Franklin, Grant, Lincoln, Okanogan, and Whitman counties (Table 1). A Snowy Plover observed at the south end of Soap Lake, Grant County, on May 15, 1993, was the only sighting during our project. This bird was not seen again during several additional visits to the site. The south shore of Soap Lake is not suitable nesting habitat for Snowy Plovers.

**Table 1. Sites visited in the Columbia Basin, Washington, to search for Snowy Plovers and to assess habitat conditions. Site visits occurred on 28 April 1987, 2 June - 24 July 1992, and 15 May - 14 July 1993. Sites with suitable alkaline habitat are indicated in italics.**

<b>Adams County</b>	
1. <i>Alkali Lake</i> T20N R38E S12	47. Soap Lake T22N R26E S13
2. Honn Lake T16N R38E S02	48. Summer Falls St. Pk. T23N R28E S10
3. Finnell Lake T19N R36E S36	49. Table Lake T25N R28E S32
4. Sprague Lake T20N R38E S05	50. Tabor's Lake T25N R28E S33
5. Twelvemile Lake T17N R38E S09	51. Trail Coulee Pond T24N R28E S27
6. Upper Cow Lake T19N R37E S21	52. unnamed pond T21N R29E S18
7. Winn Lake T17N R38E S25	<b>Lincoln County</b>
<b>Douglas County</b>	
8. Atkins Lake T25N R27E S31	53. Cormana Lake T23N R35E S19
9. Del Rio No. 1 T29N R28E S14	54. Deer Lake T23N R33E S23
10. Del Rio No. 2 T29N R28E S14	55. Greenwood Lake T26N R34E S23
11. Del Rio No. 3 T28N R28E S14	56. Lakes S of Sprague T21N R38-39E
12. Del Rio No. 4 T29N R28E S14	57. Rearland Ponds T25N R39E S10
13. Del Rio No. 5 T29N R28E S11	58. Rock Lake T24N R34E S32
14. Del Rio No. 6 T29N R28E S11	59. <i>Swanson Lakes</i> T25N R34E S32
15. Del Rio No. 7 T29N R28E S15	60. Sylvan Lake T21N R34E S08
16. Haynes Lake T26N R27E S28,33	61. <i>unnamed pond</i> T24N R34E S19
17. Heinlen Lake T26N R28E S29	62. unnamed pond T24N R33E S01
18. Jolly's Lake T26N R28E S31	63. unnamed pond T25N R34E S31
19. <i>Jolly's Pond</i> T25N R27E S01	64. unnamed pond T25N R35E S10
20. St. Andrew's Lake T26N R27E S32	65. unnamed pond T25N R35E S16
21. <i>Stallard Lake</i> T26N R27E S33	66. unnamed pond T26N R34E S11
22. <i>Suzie's Pond</i> T29N R29E S22	67. Wall Lake T24N R33E S07
23. unnamed pond T29N R29E S18	68. Wall Lake T24N R35E S19
24. <i>unnamed pond</i> T27N R29E S07	69. Whittaker Lake T24N R35E S03
<b>Franklin County</b>	
25. Wahluke Wildlife Area T14N R28E S31	70. Willow Lake T24N R33E S12
<b>Grant County</b>	
26. Banks Lake T25N R28E S34	<b>Okanogan County</b>
27. Beverly Lake T17N R29E S22	71. <i>Alkali Lake</i> T30N R28E S04-05
28. Black Pond T25N R28E S33	72. Little Soap Lake T31N R25E S02
29. Brook Lake T22N R28E S02	73. Rat Lake T31N R28E S06
30. Canal Pond T24N R28E S34	74. <i>Stinking Lake</i> T32N R28E S31
31. <i>Crab Creek alkali flat</i> T16N R24E S36	<b>Whitman County</b>
32. <i>Crab Creek alkali flat</i> T16N R24E S33	75. Alkali Lake T19N R40E S01
33. <i>"DNR" pond</i> T16N R27E S36	76. Cherry Creek T19N R40E S11
34. Flat Lake T19N R23E S13	77. Crooked Knee Lake T20N R39E S16
35. George Lake T19N R24E S32	78. Folsom Lake T20N R39E S15
36. <i>Gloyd Seeps WMA</i> T21N R28E S32	79. Lamont Lake T20N R39E S29
37. Goose Island T25N R28E S22	80. Palouse River T16N R39E S08
38. Heron Lake T17N R28E S10	81. Rock Lake T20N R41E S32
39. Junction Lake T25N R28E S32	82. Sheep Lake T20N R39E S08
40. Keith's Pond T19N R30E S33	83. Soap Lake T32N R25E S35
41. Lake Lenore T23N R26E S23	84. Sutton Creek T16N R39E S12
42. Little Soap Lake T23N R26E S35	85. Texas Lake T18N R39E S26
43. Potholes Reservoir T18N R27-28E	86. Tule Lake T20N R40E S36
44. Power Plant Pond T23N R28E S4	87. Union Creek T16N R39E S27
45. Rip Rap Pond T25N R28E S33	88. unnamed pond T18N R40E S17
46. Sage Pond T17N R29E S27	89. unnamed pond T18N R40E S19
	90. unnamed pond T19N R40E S35
	91. unnamed pond T20N R39E S11
	92. unnamed spring T18N R39E S08
	93. unnamed spring T18N R39E S21

We located only 13 sites that appeared even marginally suitable for Snowy Plovers (Figure 1, Table 1). The majority of these sites were small alkali playas; three sites (Upper Cow Creek and the two Crab Creek sites) are alkali flats adjacent to intermittent creeks. We believe that eight sites are worthy of periodic future monitoring: Alkali Lake (Adams County), Upper Cow Creek, Stallard Lake, the Crab Creek sites, Swanson Lakes, Alkali Lake (Okanogan County), and Stinking Lake. Of these, Alkali Lake (Adams County) was clearly the most suitable location due to its size (1.5 km in length); the presence of water; a playa shoreline of crusty, dry alkali; and an abundance of brine flies. Upper Cow Creek and one of the Swanson Lakes were inundated with water in 1993 and not suitable for plovers at that time. More information about habitat conditions at all sites visited is available from Buchanan upon request.

#### DISCUSSION

Our assessment of habitat suitability for Snowy Plovers was based on recent conditions within the Columbia Basin province. Discussions with area residents indicated that many local lakes and potholes had recently gone dry due to extended drought conditions. Some of the unsuitable sites we visited were dry or nearly dry. Fluctuating water levels may variously influence suitability at a number of sites. Several ponds and lakebeds were clearly unsuitable after being converted to agricultural land.

The likelihood that Snowy Plovers occur regularly in the Columbia Basin region appears low. The vast majority of sites we visited did not contain suitable nesting or foraging habitat. All four records of Snowy Plovers for the region are at sites that lack suitable nesting or foraging habitat. The small size of the suitable sites and the substantial distances between them make it unlikely that plovers regularly migrate to these locations, particularly given the distance from the nearest known breeding range in southeastern Oregon (Herman et al. 1988). However, Snowy Plovers occasionally move across this landscape, perhaps in response to changing regional conditions. Consequently, we encourage observers to visit the sites periodically that appear most suitable for Snowy Plovers.

#### ACKNOWLEDGMENTS

We thank Eric Cummins for his support of this project, Ron Friesz for providing details of his observation, Peter Paton for helpful suggestions, and Maureen Murphy and the Colville Nation. Steve Herman and Dennis Paulson provided comments that improved the manuscript.

#### LITERATURE CITED

- AOU. 1983. Check-list of North American birds, 6th ed. American Ornithologists' Union. Lawrence, Kansas.
- Herman, S.G., J.B. Bulger, and J.B. Buchanan. 1988. The Snowy Plover in southeastern Oregon and western Nevada. *Journal of Field Ornithology* 59:13-21.
- Page, G.W. and L.E. Stenzel (eds). 1981. The breeding status of the Snowy Plover in California. *Western Birds* 12:1-40.
- Page, G.W., L.E. Stenzel, W.D. Shuford, and C.R. Bruce. 1991. Distribution and abundance of the Snowy Plover on its western North American breeding grounds. *Journal of Field Ornithology* 62:245-255.
- Paton, P.W.C. and T.C. Edwards. 1990. Status and nesting ecology of the Snowy Plover at Great Salt Lake—1990. *Utah Birds* 6:49-66.
- Rogers, T.H. 1988. Northern Rocky Mountains. *American Birds* 41:464.
- U.S. Department of the Interior. 1993. Endangered and threatened wildlife and plants. Determination of threatened status for the Pacific Coast population of the Western Snowy Plover. *Federal Register* 58:12864-12874.
- Weber, J.W. and E.J. Larrison. 1977. *Birds of southeastern Washington*. University Press of Idaho. Moscow.

*Manuscript received 18 January 1997*

## SNOWY OWL IRRUPTION INTO WASHINGTON AND VICINITY DURING THE WINTER OF 1996-1997

Kelly M. Cassidy

Washington Cooperative Fish and Wildlife Research Unit, Box 357980,  
University of Washington, Seattle, Washington 98195

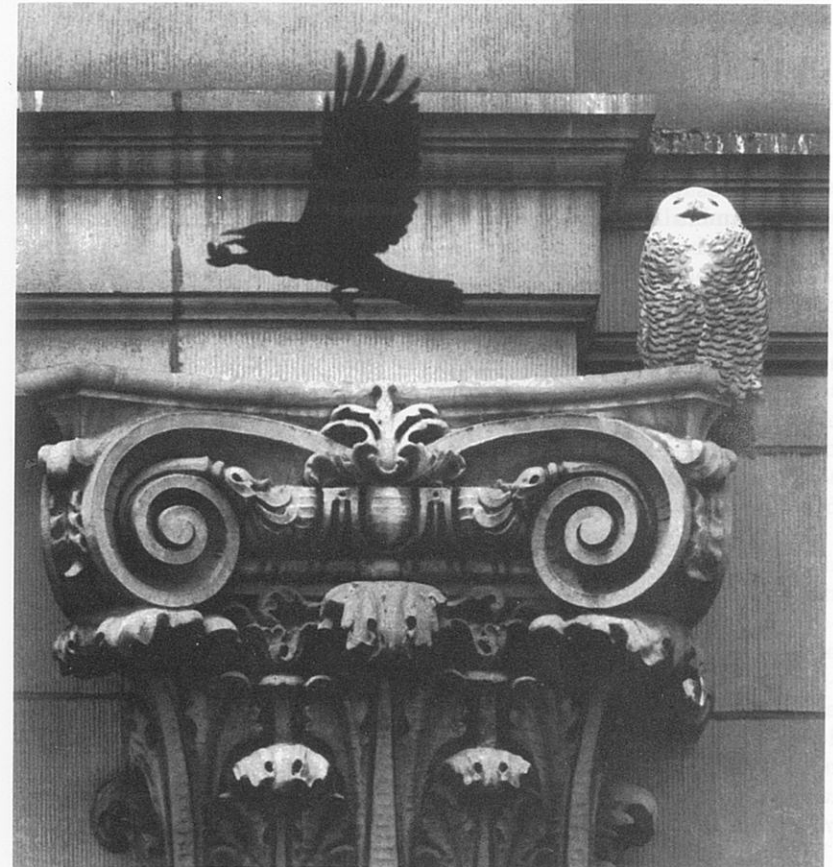
Snowy Owls (*Nyctea scandiaca*) occur irregularly in Washington in the winter, in numbers ranging from none to over 100 recorded (Jewett et al. 1953). Based on Christmas Bird Count data, Snowy Owls appear in Washington and Oregon in greater than 50% of winters (Parmelee 1992). Winters when Snowy Owls are numerous are often thought to coincide with periodic reductions in rodent populations in the owls' Arctic breeding range (Jewett et al. 1953). However, Kerlinger et al. (1985) questioned that hypothesis because lemming population crashes occur in a mosaic pattern on a scale too small to explain the large geographic areas over which Snowy Owl winter irruptions occur. Other factors, such as weather, may be important (Parmelee 1992).

Christmas Bird Count data indicate that frequency and intensity of Snowy Owl irruptions vary geographically. In eastern Canada and the northeastern United States, irruptions occur fairly regularly at about four-year intervals; in the upper Great Plains (Montana, North Dakota, and South Dakota), owl numbers vary from year to year, but with few clear peaks and valleys; and in western Canada and the northwestern United States, there are small irruptions with occasional major irruptions (Parmelee 1992). The most recent major irruptions in Washington, before the 1996-1997 irruption, occurred during the winters of 1973-1974 and 1966-1967 (Parmelee 1992).

After numerous Snowy Owl sightings were reported on the electronic mailing (e-mail) list *Tweeters* ([tweeters@u.washington.edu](mailto:tweeters@u.washington.edu)), in late October and early November 1996, it became apparent that a major Snowy Owl irruption into Washington was starting. Several list subscribers suggested that sightings be tracked and saved. This paper is the eventual result of collecting and mapping Snowy Owl reports posted on *Tweeters*.

### METHODS

*Tweeters* is an e-mail list primarily (but not exclusively) for the birding community of "Cascadia" (Washington, Oregon, southern British Columbia, and Idaho). Postings are usually about bird sightings, avian ecology, and conservation issues. *Tweeters* subscribers were asked to post their Snowy Owl observations, including the number of owls seen, date, location (by Township, Range, and Section, if known), observer name, and relevant comments. Subscribers posted their own sightings and other



Snowy Owl on Christian Science Church, harassed by American Crow  
Seattle (KG), 8 Mar 1997 (Photo Betty Udesen/*Seattle Times*)

credible sightings of non-subscribers. Transcripts of Rare Bird Alerts (RBAs) for most of the region are also posted on *Tweeters*, and they were gleaned for Snowy Owl reports as well. *Tweeters* list manager Dan Victor archived all reports at a publicly accessible web site (<http://weber.u.washington.edu>). Several reminders were posted to *Tweeters* throughout the irruption to encourage birders to continue reporting their sightings as Snowy Owls became progressively less of a novelty. Sources of data for this paper also included reports published in *Field Notes* 51 (1-3), 1997; local newspaper accounts (usually with a photo of a Snowy Owl); and personal communications to me. Snowy Owls are difficult to mistake for any other species, and questionable identifications never

appeared to be an issue. Sex and age class, however, could not be reliably determined from volunteer accounts.

For the Washington reports, each location was mapped to Section (a one-mile-square division of a Township/Range). If the observer had not supplied Township, Range, and Section, the location was determined to the extent possible. Most locations could easily be determined to within a mile (plus or minus a Section). A few of the descriptions (mostly from the Columbia Basin) were more vague, for example, "on Detour Road between Davenport and Reardan," which covers a distance of about 18 km. For those types of descriptions, a Section in the center of the possible area was chosen as the location. In my Figures, Washington locations are displayed against a background of steppe zones and low-elevation west-side forest zones (*sensu* Cassidy 1997). Oregon, Idaho, and southern British Columbia reports were included in the database but not mapped. If there were duplicate reports (reports of owls at the same location on the same day), only the report with the greatest number of owls was included in the database. If a duplicate report had the same number of owls, the first submitted report was the one included. There were 523 non-duplicate reports entered into the database: 355 from Washington, 86 from Oregon, 73 from British Columbia, and nine from Idaho.

## RESULTS

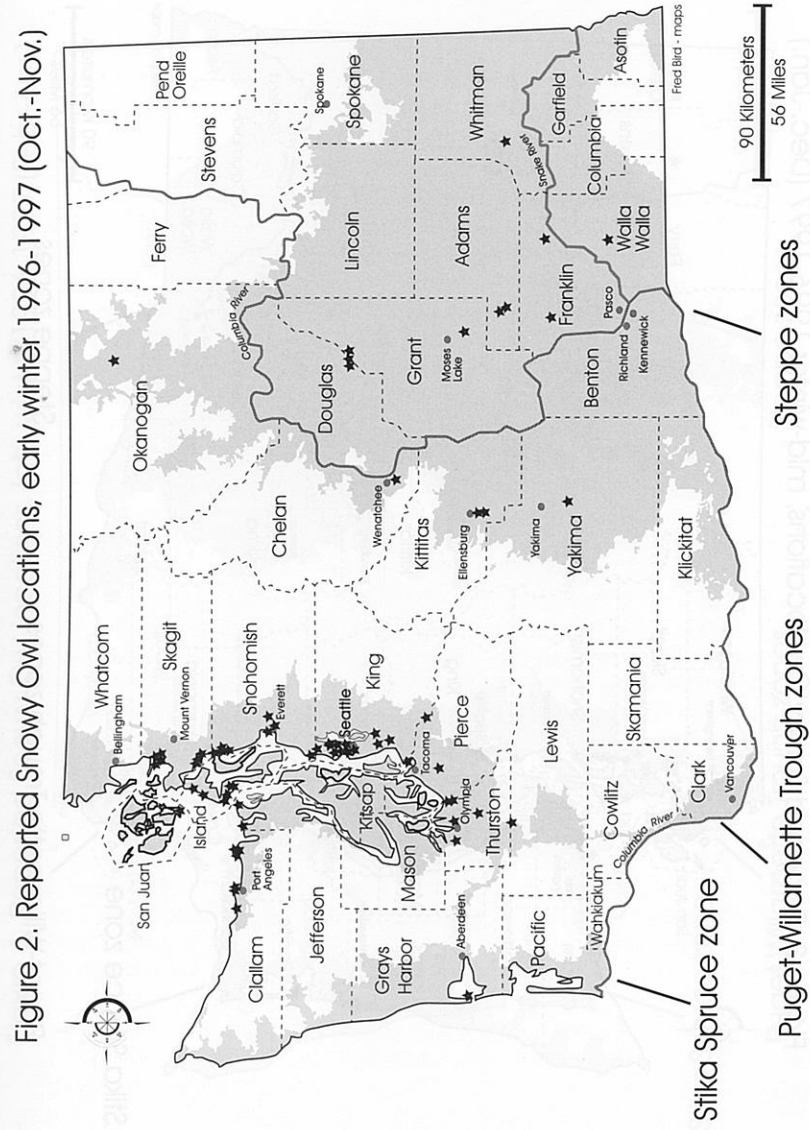
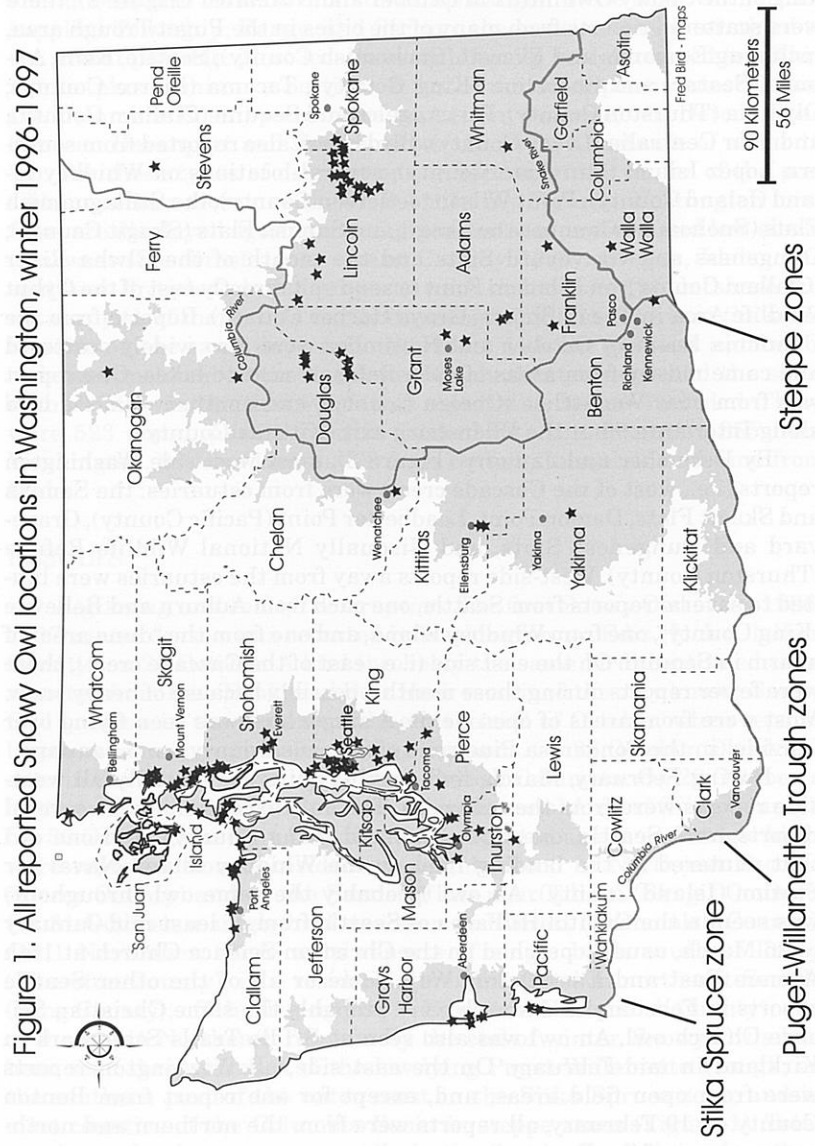
*Beginning and end of the irruption.* The first Snowy Owl of the 1996-1997 winter season was reported in Washington, on Ediz Hook (Clallam County) on 20 October. A bird (probably the same bird) continued to be reported from Ediz Hook, and Ediz Hook remained the only known Snowy Owl location in the region until near the end of October, when reports began to come in rapidly from other locations. On 28 October, a bird was seen in the Fraser River lowlands in British Columbia. On 29 October, a bird was found near Seattle-Tacoma International Airport (King County). On 30 October, the Ediz Hook bird was reported again, and single birds were reported from a residential neighborhood in Northeast Tacoma (Pierce County) and on the Samish Flats near Edison (Skagit County). On 31 October, a single bird was seen in Everett (Snohomish County). On 1 November, there were reports of single birds south of Lacey (Thurston County), in a residential neighborhood in northeast Seattle (King County), off the fishing pier in Edmonds (Snohomish County), and of the owl in Northeast Tacoma. By the end of winter, Snowy Owls had been seen through much of the low-lying Puget-Willamette Trough, on the southern part of the outer coast in the Sitka Spruce zone, and in most counties of the Columbia Basin in steppe zones (Figure 1). Total numbers of owls seen rose rapidly in the first week of November, then more or less leveled off during the second week of November. Numbers began dropping around the beginning of March and dropped very

rapidly toward the end of March. The last report from the region was of two birds near Stanwood (Snohomish County) on 15 April.

*Washington reports and movements during the winter.* At the beginning of the Snowy Owl influx in October and November (Figure 2), there were scattered reports from many of the cities in the Puget Trough area, including Edmonds and Everett (Snohomish County); Seattle, Kent, Auburn, Seatac, and Shoreline (King County); Tacoma (Pierce County); Olympia (Thurston County); Port Angeles and Sequim (Clallam County); and near Centralia (Lewis County). Birds were also reported from southern Lopez Island (San Juan County); several locations on Whidbey Island (Island County); Point Wilson (Jefferson County); the Stillaguamish Flats (Snohomish County); the Skagit and Samish Flats (Skagit County); Dungeness and Graveyard Spits and the mouth of the Elwha River (Clallam County); and Damon Point (a sand spit directly east of the Oyhut Wildlife Area in Ocean Shores, Grays Harbor County). Reports from the Columbia Basin in October and November were also widely scattered and came mostly from areas of open fields or next to lakes. One report was from near Wenatchee (Chelan County), and another was of a bird along Interstate 90 at the Ellensburg exit (Kittitas County).

By December and January (Figure 3), most west-side Washington reports (i.e., west of the Cascade crest) were from estuaries: the Samish and Skagit Flats, Damon Point, Leadbetter Point (Pacific County), Graveyard and Dungeness Spits, and Nisqually National Wildlife Refuge (Thurston County). West-side reports away from the estuaries were limited to several reports from Seattle, one each from Auburn and Bellevue (King County), one from Whidbey Island, and one from the "dune area" of a farm in Sequim. On the east side (i. e., east of the Cascade crest), there were fewer reports during those months, possibly because of heavy snow. Most were from areas of open fields. A single bird was seen flying over Colville (in the Ponderosa Pine zone of Stevens County) on 5 January.

During February, March, and April (Figure 4), virtually all west-side reports were from the estuaries. The only exceptions were several reports from Seattle, one from Kirkland (King County), and one owl that wintered at the landing field on the Whidbey Island Naval Air Station (Island County). An owl (probably the same owl throughout) was seen in the Capitol Hill area of Seattle from at least mid-January to 26 March, usually perched on the Christian Science Church at 16th Avenue East and East Denny Way. Some or all of the other Seattle reports in February and March were probably the same Christian Science Church owl. An owl was also seen at Bridle Trails State Park in Kirkland in mid-February. On the east side, all Washington reports were from open field areas, and, except for one report from Benton County on 19 February, all reports were from the northern and north-eastern part of the Basin.





Washington areas where more than five owls were seen in a day included:

- Dungeness and Graveyard Spit/Sequim: seven to nine owls seen on a few occasions. Eleven counted on the Sequim-Dungeness Christmas Bird Count on 21 December.
- Samish Flats/"West 90" (vicinity of Samish Island Road through the flats west of Edison): six to nine owls seen regularly.
- Stillaguamish Flats/Big Ditch: eight and nine owls reported.
- Skagit Flats: up to six owls reported.
- Leadbetter Point: six to eight owls reported.
- Damon Point: over ten owls reported on several occasions. Sixteen owls found there on the Grays Harbor Christmas Bird Count on 21 December. High count of 24 owls reported on 11 January.
- Northern Lincoln County: in both the vicinity of State Route 2 between Wilbur and Creston, and along Boyk Road (south of Davenport), six owls reported. Sixteen owls reported within a mile (1.6 km) of one another between Davenport and Reardan on 18 March.

*Southern British Columbia reports.* In southern British Columbia, birds were reported from the greater Vancouver area (usually from Boundary Bay, but also from the Iona Island south jetty, Vancouver International Airport, Reifel Refuge, Ladner, and Brunswick Point), near and at Tofino Airport on the west coast of Vancouver Island, in the Nanaimo area on the east side of Vancouver Island, in the Pender Island area near southeastern Vancouver Island, in Victoria, and in Merritt and Vernon in south-central British Columbia. The vast majority of birds reported from British Columbia were from Boundary Bay, which also had the highest numbers of birds reported from anywhere in the region. The number of owls at Boundary Bay increased up to January, when 35 to 50 birds were reported between 3 January and 20 January (Table 1). Over 20, and up to 42, birds continued to be reported frequently up to 9 March.

Boundary Bay owls were usually within a mile (1.6 km) of the south end of 72nd Street in Vancouver, often in the vicinity of the greenhouses there. The British Columbia location with the second highest concentration was the fields west from Highway 17 toward Brunswick Point, where 16 owls were seen on the Ladner Christmas Bird Count (3 January). On 26 January, up to ten birds could be seen from Brunswick Point at one time. Six birds were reported from Nanaimo on 1 December, plus an additional six in rehabilitation at the same time. Three were at Reifel Refuge on 3 January. Reports from other British Columbia locations were of one or two birds.

*Oregon reports.* In Oregon, birds were reported from Bayocean Spit and Tillamook Bay (Tillamook County); Portland—including a road kill (Multnomah County); Ione (Morrow County); Fort Stevens State Park—usually at the south jetty of the Columbia (Clatsop County); Coos Bay Spit (Coos County); Shedd, Peoria, and Tangent (Linn County); Salem

Table 1. Number of Snowy Owls reported from Boundary Bay, British Columbia.

Date	Number	Date	Number
7 November 1996	4	20 January	40
9 November	7	24 January	2
10 November	16	31 January	29
11 November	12	5 February	29
14 November	"piles" (at least 10?)	7 February	27
19 November	11	8 February	25
22 November	16	9 February	42
24 November	2	16 February	31
29 November	30	23 February	6
9 December	34	2 March	23
10 December	32	9 March	25
3 January 1997	43	13 March	16
12 January	35	15 March	1
13 January	50	16 March	1
16 January	43	26 March	1
18 January	"a lotta Snowy Owls"	30 March	3

and Ankeny National Wildlife Refuge (Marion County); south spit of the Siuslaw River and Junction City (Lane County); near the mountain locator turnout on Highway 206 between Wasco and Condon, and north of Condon (Gilliam County); south of Burns (Harney County); Forest Grove (Washington County); near Baskett Slough National Wildlife Refuge (Polk County); Upper Klamath Lake (Klamath County); Ontario sewage ponds near Vale (Malheur County); and South Beaver Creek, Alsea Bay, and Yaquina Bay (Lincoln County). Most reports were from Fort Stevens State Park and Bayocean Spit. Mike Patterson, in weekly bird surveys, reported at least three different owls at one time at Fort Stevens State Park; there were probably five individuals in the area. "As many as four," but usually two, were reported from Bayocean Spit at any one time. Reports from other Oregon locations were always of single birds.

*Idaho reports.* There were reports from only six locations in Idaho, all but one of them from northern Idaho. A bird was seen at Mann Lake near Lewiston (Lewis County) on 5 November and 7 November. One bird was seen in Genesee (Latah County) on an unknown date. Two birds were seen on the Rathdrum Prairie west of Coeur d'Alene (Kootenai County) on 13 February and 27 February. Three birds were seen a few miles north of Sandpoint (Bonner County) most of the winter. A single bird was seen at the Kootenai National Wildlife Refuge (Boundary County) on an unknown date. One bird was reported from southern Idaho, in Hagerman (Gooding County) on 12 January.

*Minimum number of owls in the region during the winter.* The total number of owls reported on a single day depended not only on the number



Figure 5. Snowy Owl numbers throughout WA, OR, ID and southern BC

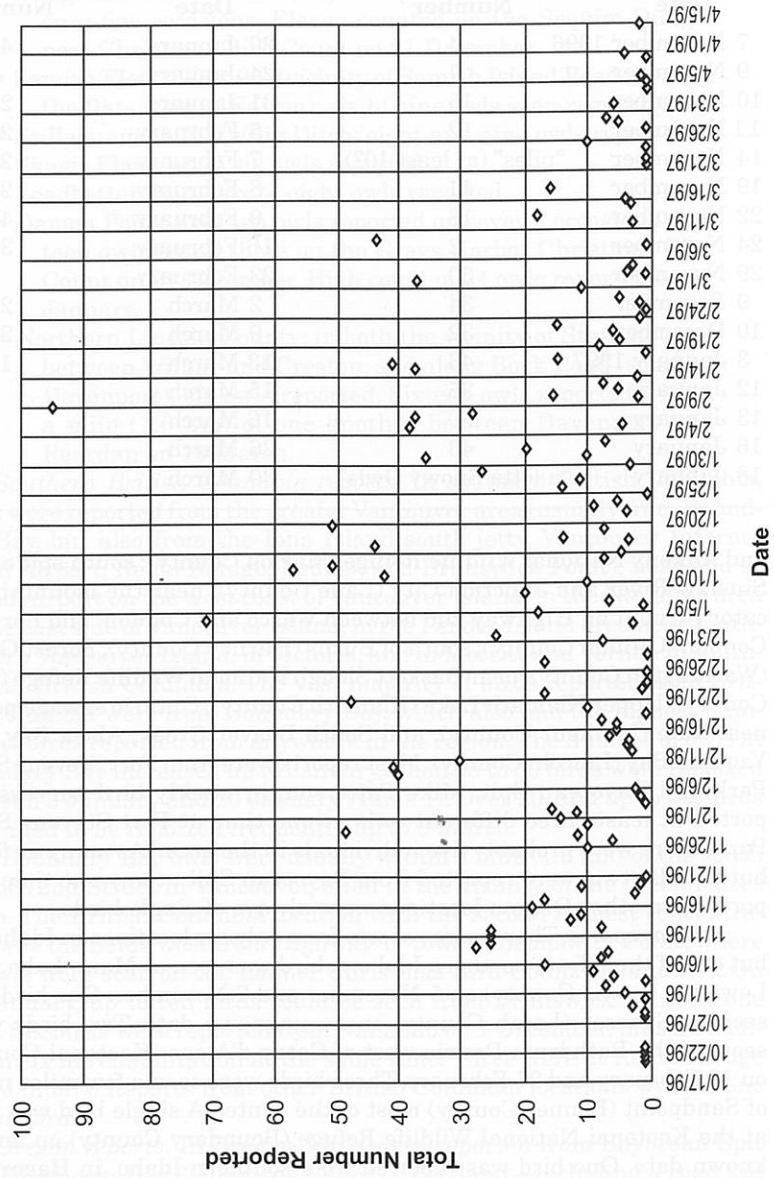
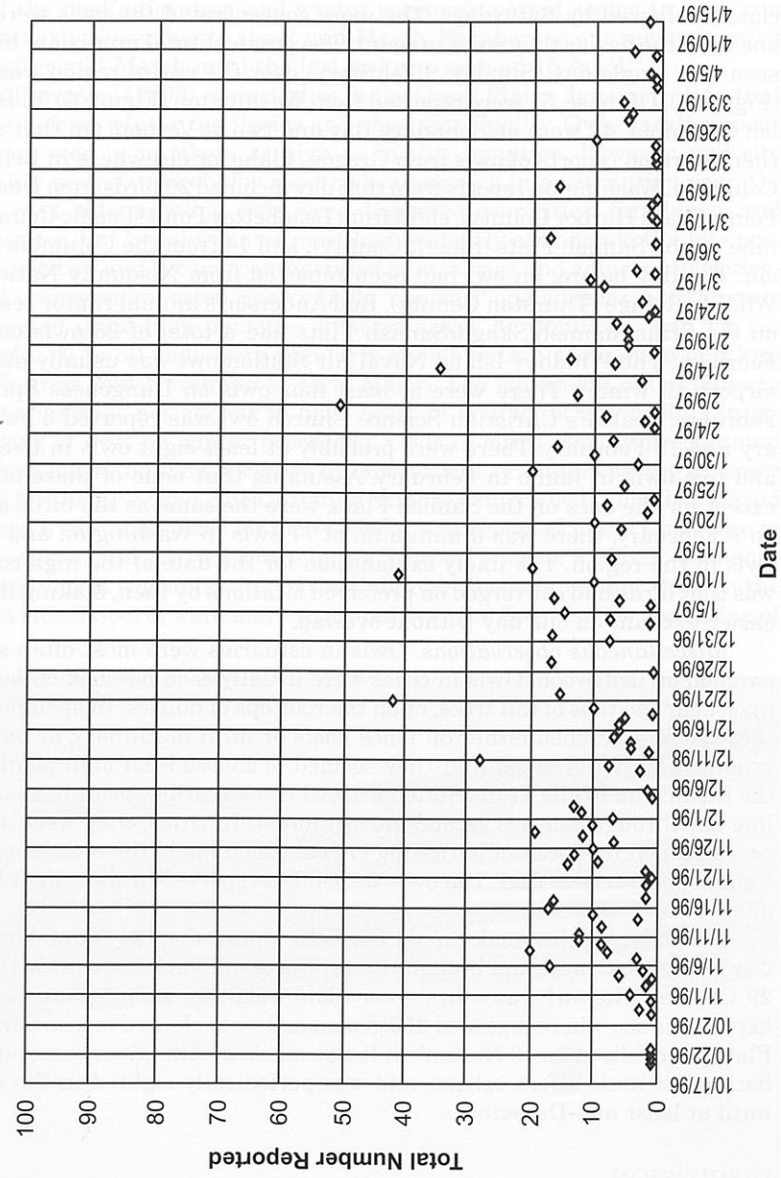


Figure 6. Snowy Owl numbers for Washington



of owls available to count, but also on the number of observers, the extent to which observers visited likely owl sites, and the degree of owl concentration. The days of highest total owl numbers were usually Sundays, closely followed by Saturdays. The more concentrated the owls were in one spot, the easier they were to count. The greatest total number of birds seen in a single day (Sunday, 9 February) over the entire region was 95 (Figure 5). Of those, 51 were reported from Washington (Figure 6). In British Columbia, 42 were at Boundary Bay and two at Vernon. On that day, there were no reports of owls from Oregon, Idaho, or elsewhere in British Columbia. Washington reports from that day included 20 birds from Damon Point (Grays Harbor County), eight from Leadbetter Point (Pacific County), nine on the Samish Flats (Skagit County), and 14 from the Columbia Basin. The day before, an owl had been reported from Nisqually National Wildlife Refuge (Thurston County). Bud Anderson's annual raptor census on the Stillaguamish/Skagit/Samish Flats had a total of 28 owls on 15 February. The Whidbey Island Naval Air Station owl was usually at the airport all winter. There were at least four owls on Dungeness Spit in February. Seattle's Christian Science Church owl was reported 6 February and 13 February. There were probably at least eight owls in Oregon and five owls in Idaho in February. Assuming that none of these birds, except for the ones on the Samish Flats, were the same as the birds seen on 9 February, there was a minimum of 77 owls in Washington and 134 owls in the region. The likely explanation for the date of the high count was that birds had converged on preferred locations by then, making them easier to count on one day without overlap.

*Miscellaneous observations.* Owls in estuaries were most often seen perched on driftwood. Owls in cities were usually seen perched on buildings, near the tops of tall trees, or on the rooftops of houses. In open fields, they usually perched either on fence posts or farm machinery, or on the ground. Jim Acton noted that they seemed to choose local high points in the Basin. The Bridle Trails State Park owl favored utility poles in a power line cut through mature second-growth forest. In cities, they were often accompanied by flocks of harassing crows, which made the owls easy for human observers to find. The owls were often reported to show little fear of people.

An underweight, weak Snowy Owl was captured at the Alamo Rent A Car garage in Seatac and brought to the Woodland Park Zoo in Seattle on 29 October. The owl was a first-year male weighing 1150 grams. It was kept at the zoo where it gained 250 grams and was released on the Samish Flats near Edison on 13 November. It was marked with green paint on the back of its neck before release and was periodically sighted in the area until at least mid-December.

## DISCUSSION

Parmelee (1992) indicates that peak migration and winter residence occurs from December to mid-March, and off-peak migration during

November and from mid-March through April. The irruption in our region is generally consistent with his representation, except that the first owl in our region appeared on 20 October, somewhat earlier than he indicates; and the peak migration and winter residence period seems to have run from early November to about mid-March. Numbers in our region tapered off after mid-March until the last owl was seen on 15 April.

Parmelee (1992) cites studies in the Great Plains demonstrating that owls defend winter territories and show site fidelity. Owls rarely appear in our area in numbers as high as in this irruption, however, and site fidelity seems unlikely for most owls appearing in an irruption year. On the west side, arriving owls were dispersed over cities, farmlands, and estuaries, but by mid-winter most had evidently abandoned the less preferred cities and become concentrated in estuaries and adjacent flats. Several observers reported Snowy Owls "chasing" one another, but the owls tolerated quite high densities in some areas. At Boundary Bay, for example, 20 to 50 owls were regularly visible within a one-mile (1.6 km) walk, from mid-November to early March. The movement out of cities to estuaries does not appear to have been an artifact of any decline in reporting of owls as winter proceeded. Owls in cities usually precipitated calls to local Audubon Societies by non-birders, or birders seeing a Snowy Owl for the first time. The Christian Science Church owl, though it stayed in much the same place for many weeks, was reported many times late in the season, and got its picture in the *Seattle Times* on 9 March. Evidence of population concentration in the Columbia Basin is weaker than on the west side. Reports were more scattered over the Basin at the beginning of



Snowy Owl along Detour Road (LI), 27 Jan 1997 (Photo Ron Dexter)

the migration, and the owls did seem more concentrated in the northern Basin by the end of winter; but observers in the Basin are sparse, heavy snowfall in mid-winter restricted travel, and the white owls are more difficult to see on a snowy landscape than on landscapes of the greener west side. The 16 owls reported within a mile (1.6 km) of one another in Lincoln County on 18 March might have represented a concentration of owls in a favorable site, or the owls might have been staging for the migration north.

#### ACKNOWLEDGMENTS

Limitations of space preclude the listing of all those who supplied records. I thank the nearly 200 people who posted observations to Tweeters—their own as well as those of non-subscribers. Thanks also to non-Tweeters who generously responded to requests for records specifically for this summary. Special thanks go to Dan Victor for archiving records and for maintaining Tweeters.

#### LITERATURE CITED

- Cassidy, K.M. 1997. Land cover of Washington state: description and management. Volume 1 in Washington State Gap Analysis—final report (K.M. Cassidy, C.E. Grue, M.R. Smith, and K.M. Dvornich, eds.). Washington Cooperative Fish and Wildlife Research Unit, University of Washington. Seattle.
- Jewett, S.G., W.P. Taylor, W.T. Shaw, and J.W. Aldrich. 1953. Birds of Washington state. University of Washington Press, Seattle.
- Kerlinger, P., M.R. Lein, and B.J. Sevick. 1985. Distribution and population fluctuations of wintering Snowy Owls (*Nyctea scandiaca*) in North America. *Canadian Journal of Zoology* 63:1829-1834.
- Parmelee, D.F. 1992. Snowy Owl. In *Birds of North America*, no. 10 (A. Poole, P. Stettenheim, and F. Gill, eds.). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.

*Manuscript received 1 October 1997*

#### GREAT GRAY OWLS BREEDING IN WASHINGTON

Andy Stepniewski

291 Windy Point Drive, Wapato, Washington 98951

Kent Woodruff

Post Office Box 6, Winthrop, Washington 98862

The Great Gray Owl (*Strix nebulosa*), variously described as the "Phantom of the North," "magnificent," and "elusive," is a Holarctic resident of boreal forests. It is the only member of its genus to inhabit both the Old and New Worlds (Voous 1988). Two subspecies are recognized: *S. n. nebulosa*, the North American Great Gray Owl, and *S. n. lapponica*, which inhabits Europe and Asia.

Canada and Alaska hold most of North America's breeding population of this owl. In the far north, breeding habitats reported in the literature are associated with higher soil moisture and taiga forests (Nero 1980, Harris 1984, Lang et al. 1991). Farther south, in the western United States, drier, montane habitat types are most often reported for nesting (Reid 1989, Winter 1986, Bull and Henjum 1990, Bryan and Forsman 1987). It is likely that Great Gray Owls are somewhat opportunistic in their breeding habitat preferences, siting their nests in a variety of locations. The common features of nest stands appear to be large trees containing some type of flat platform available for a nest, and adjacent openings such as meadows, bogs, muskegs, or clearcuts.

A surprising discovery of a population of Great Gray Owls was made in 1915 in the mountain meadows of Yosemite National Park in the Sierra Nevada of California (Grinnell and Storer 1924). This diminishing population, presently numbering about 50 birds at the very southern limit of their range, is thought to be a relict of the Pleistocene Epoch, when cooler and moister conditions in northern North America resulted in establishment of boreal forests far to the south of where they now occur (Gaines 1988).

Of the three Pacific Coast states, the Great Gray Owl's distribution has been most enigmatic for Washington. Although documented evidence of breeding has been lacking, nesting in this state has been widely assumed. In fact, most recent popular field guides have mapped interior Washington as a regular part of this owl's breeding range (Robbins et al. 1983, Farrand 1983, National Geographic Society 1987, Stokes and Stokes 1996, Griggs 1997). Only one such guide (Peterson 1990) clearly depicts the Great Gray Owl as an uncertain resident in Washington. Peterson was apparently alone in having draft maps checked for accuracy by Washington ornithologists (Eugene Hunn, Dennis Paulson, and Ralph Widrig were acknowledged as reviewers of these maps).

Most authors seem to have assumed, plausibly enough, that because the Great Gray Owl is a regular breeder both to the south in Oregon and California, and to the north in British Columbia, it must therefore be a nesting resident of Washington as well. Another ground for this assumption, albeit a misleading one, may have been provided by this owl's well-documented status as an irregular winter wanderer, in small numbers, to the northern parts of the Puget Trough (most records are from Whatcom and Skagit Counties: Wahl 1995). These are presumably birds that have moved from the Cariboo-Chilcotin Plateau of central British Columbia (where Great Grays are fairly common) via the Fraser River to the Fraser River delta and adjacent lowlands of the southwestern coast of that province, probably because of deep snow or prey shortages in their usual home. A few such individuals apparently stray farther south into adjacent Washington. Great Gray Owls have also occurred in northeastern Washington in winter, particularly in the Okanogan Highlands and Selkirk Mountains. Still others, noted in the Blue Mountains of extreme southeastern Washington, are assumed to be wanderers from the Wallowa and Blue Mountain populations of Oregon. Most records from the Washington Blues have been in the winter months.

By the mid-1980s, there were nest records across Canada and in Wisconsin, Minnesota, Montana, Wyoming, Idaho, Oregon, and California; but there was still no concrete evidence of breeding known from Washington.

In 1988, Stepniewski became interested in this apparent gap in the breeding range of the Great Gray Owl. Washington Department of Wildlife data contained numerous records of Great Gray Owls, some of which were possible misidentifications. This was a period of intense owl surveys in the Pacific Northwest, and inventory crews possessed a variety of skill and experience levels. There was, however, a cluster of records from the central Okanogan Highlands around Havillah and Wauconda that had been substantiated by Department of Wildlife biologists.

Stepniewski began exploring this area in 1989. On his first visit on 11 March, he and his wife, Susan, encountered a Great Gray Owl perched at dusk in a towering Engelmann spruce (*Picea engelmannii*) along Toroda Creek, 10 km north of Wauconda in eastern Okanogan County. As they entered the spruce forests from the grasslands along Toroda Creek, Susan (who had prior experience with Great Gray Owls in Oregon) exclaimed, "Andy, there's one! A Great Gray Owl, a life bird for you... bow-tie and all!" Stepniewski soon realized that Great Gray Owls were neither rare nor difficult to locate in this part of Okanogan County. On annual trips from 1989 through 1997, he has never failed to find them. Prime habitat includes forest/grassland margins from 1,000 m to 1,350 m elevation within the roughly rectangular area defined by Havillah, Lake Bonaparte, Chesaw, and Molson in northeastern Okanogan County. A few more Great Grays have been found to the south at Moses Meadow on the Colville Indian Reservation.

In the early 1990s, biologists received numerous reports of Great Gray Owls in north central Washington, many of them concentrated in the area described above. In the spring of 1990 alone, 21 reports were obtained by the Tonasket Ranger District of the Okanogan National Forest. This high number of reports possibly indicates a peak of breeding activity in that year.

The first record of nesting Great Gray Owls in Washington came in 1991, when United States Forest Service crews reported seeing a "very large, round-faced owl" in the vicinity of old timber harvest units in the eastern portion of the Tonasket Ranger District. Woodruff and Dawn Zebley, working as biologists for the National Forest, searched the area for adequate nest structures and, on 9 May, found adult Great Gray Owls making frequent trips to the top of a broken-off snag. Upon closer inspection, two young owlets were observed receiving meals of northern pocket gophers and voles (*Microtus* sp.). The observers were ecstatic, as this confirmed the nesting that had been expected so long for Washington, but had proven so difficult to document.

In 1992, four additional nest sites were confirmed in eastern Okanogan County and western Ferry County, all in similar mesic, mixed-conifer habitat with scattered forest openings. The owls were found to be using large, broken-top snags, or mistletoe brooms near the trunks of trees, for their nest sites. Snags, especially large ones, were in short supply in the Okanogan Highlands, mainly as a result of firewood cutting and the intentional felling of snags during timber harvest and wildfire prevention projects. In the vicinity of the first nest found, many large Ponderosa pine (*Pinus ponderosa*) snags greater than three feet (90 cm) in diameter had been felled to diminish the risk of forest fires.

In researching Great Gray nesting habits, Woodruff and Zebley took note of an article by Nero (1982) reporting excellent success in southern Manitoba and northern Minnesota with artificial nesting structures. Nero states: "Finding any nesting of Great Gray Owls is a rare and valuable discovery, but having these birds select one of our nests is especially satisfying."

Some success in augmenting natural nest structures with artificial platforms had also been experienced in Wallowa-Whitman National Forest in Oregon, and Woodruff contacted biologists there to discuss design options for a similar project in the vicinity of known sightings in the Okanogan National Forest. The chosen model, derived from that used by Bull et al. (1987), was a wooden platform structure about six inches (15 cm) deep with a six-inch square bottom and 12-inch (30 cm) wide sides sloping upward and outward from the base, measuring 18 inches (45 cm) on a side at the top edges. Holes drilled in the bottom provided drainage. A local craftsman was hired to construct the platforms from one-inch (2.5 cm) rough-sawn cedar with joints glued and screwed together. Wood chips from a local mill—readily obtainable, quickly installed, and resistant to

disturbance by wildlife and the elements—proved ideal for use as a substrate of nesting material.

In the late summer of 1993, 20 nesting platforms were erected in suitable habitat near meadows in five locations in the Okanogan Highlands. Platforms were placed 25 to 40 feet (7.5-12 m) above the ground on large trunks of trees that offered an open vista of at least 180 degrees, both for easy finding by the owls and good visibility once occupied. At least one of the 20 platforms (a different one each year) was used by nesting Great Gray Owls in 1994, 1995, and 1996. No platforms were found occupied in 1997, but if Woodruff's speculation is true—that some raptor species develop an imprint of nest structure type from the nest from which they fledge—then perhaps more and more Great Grays in the Okanogan Highlands will be using platforms as the years go by. The ultimate goal of the platform-building project is to provide plenty of opportunities to produce young from stable nest structures so that the population can thrive.

Stepniewski's first discovery of a nest came on 16 April 1994, when he and Ike Eisenhart discovered an adult Great Gray Owl sitting on a nest five kilometers south of Havillah in Okanogan County. The stick nest was located about 20 m up in a snag in a dense, old-growth forest composed mostly of Douglas-fir (*Pseudotsuga menziesii*) and western larch (*Larix occidentalis*). Earlier that season, on 12 March, the same two observers noted what were apparently the same owls foraging near a platform in their territory, prior to their nesting. It is interesting that they ultimately chose the nest site in a snag instead of utilizing the platform. On 28 June 1994, George Gerdtz (pers. comm.) observed two fledged young and one adult from this nest, at the edge of this same tract of forest.

Thus, through 1997, breeding of the Great Gray Owl in Washington has been documented only in eastern Okanogan and nearby Ferry Counties. Other areas that may yield small nesting populations of this elusive owl—for example, southwestern Asotin County and Pend Oreille County (Smith et al. 1997)—have yet to be searched thoroughly. Habitat preferences, population trends, and distribution are still very poorly understood for this species. Through 1993, breeding of Great Gray Owls had been documented in only 15 National Forests nationwide. Perhaps with time, and strong research and management emphasis, the picture will become clearer for proper conservation of the "Gray Ghost of Northern Forests."

#### LITERATURE CITED

- Bryan, T. and E.D. Forsman. 1987. Distribution, abundance, and habitat selection of Great Gray Owls in southcentral Oregon. *Murrelet* 68:45-49.
- Bull, E.L. and M.G. Henjum. 1990. Ecology of the Great Gray Owl. Pacific Northwest Research Station. General Technical Report PNW-265. U.S. Department of Agriculture, Forest Service. Portland, Oregon.
- Bull, E.L., M.G. Henjum, and R. Anderson. 1987. Nest platforms for Great Gray Owls. In *Biology and conservation of northern forest owls: symposium proceedings* (R. W. Nero, R. J. Clark, R. J. Knapton, and R. H. Hamre, eds.). Rocky Mountain Forest and Range Experiment Station. General Technical Report

- RM-142. U.S. Department of Agriculture, Forest Service. Fort Collins, Colorado.
- Farrand, J., Jr. (ed). 1983. The Audubon Society master guide to birding. Knopf. New York.
- Franklin, A. 1988. Breeding biology of the Great Gray Owl in southeastern Idaho and northwestern Wyoming. *Condor* 90:689-696.
- Gaines, D. 1988. *Birds of Yosemite and the East Slope*. Artemisia Press. Lee Vining, California.
- Griggs, J. 1997. *All the birds*. Harper Collins. New York.
- Grinnell, J. and T.I. Storer. 1924. *Animal life in the Yosemite*. University of California Press. Berkeley.
- Harris, W.C. 1984. Great Gray Owls in Saskatchewan 1974-1983. *Blue Jay* 42:152-160.
- Lang, A.L., J.R. Duncan, S. Ramsay, and J.D. Rising. 1991. Great Gray Owl and Northern Hawk Owl nests at Churchill, Manitoba. *Blue Jay* 49:208-214.
- National Geographic Society. 1987. *Field guide to the birds of North America*. National Geographic Society. Washington, D.C.
- Nero, R.W. 1980. *The Great Gray Owl—phantom of the northern forest*. Smithsonian Institution Press. Washington, D.C.
- Nero, R.W. 1982. Making nests for Great Gray Owls. *Sialia* 4:43-48.
- Peterson, R.T. 1990. *Field guide to western birds*. Houghton Mifflin. Boston.
- Reid, M.E. 1989. *The predator-prey relationships of the Great Gray Owl in Yosemite National Park*. Technical report # 35. University of California. Davis.
- Robbins, C., B. Braun, and H.S. Zim. 1983. *Guide to field identification: birds of North America*. Golden Press. New York.
- Smith, M.S., P.W. Mattocks, Jr., and K.M. Cassidy. 1997. Breeding birds of Washington state. Volume 4 in *Washington State Gap Analysis—final report* (K.M. Cassidy, C.E. Grue, M.R. Smith, and K.M. Dvornich, eds.). Seattle Audubon Society. Seattle.
- Stokes, D. and L. Stokes. 1996. *Stokes field guide to birds: western region*. Little, Brown and Co. Boston.
- Voous, K.H. 1988. *Owls of the northern hemisphere*. MIT Press. Cambridge, Massachusetts.
- Wahl, T. 1995. *Birds of Whatcom County: status and distribution*. The Author. Bellingham, Washington.
- Winter, J. 1986. *Status, distribution and ecology of the Great Gray Owl in California*. M.S. thesis. San Francisco State University. San Francisco.

*Manuscript received 6 November 1997*

## BOOK REVIEWS

**George A. Jobanek. 1997. An annotated bibliography of Oregon bird literature published before 1935. Oregon State University Press. Corvallis. ISBN 0-87071-396-5. 494 pp. \$45.**

Every member of every segment of the ornithological community in the Northwest owes George Jobanek a huge debt of gratitude for this splendid volume. From Backyard Birder to Professional Ornithologist, we all will enjoy and benefit from this labor of love, this compendium of bird history and gossip from the last half of the nineteenth century and the first 35 years of the current one.

This book is meant to complement the relatively short list of Oregon references from 1935 to 1970 (*Northwest Science* 46:122-139, 1972) by J. Michael Scott, Thomas W. Haislip, Jr., and Margaret Thompson. It accomplishes that, and much more.

From the title we might conclude that this is a strictly technical volume—dry, terse, utilitarian. Not so at all. It is rich, literary, sensitive, creative, a book that can easily be curled up with and enjoyed for the history and humanity it reveals.

Jobanek searched some 75 journals—many of them long since expired—from *American Field* to *Zoe*, including all of the professional journals (especially *Auk*, *Condor*, and *Wilson Bulletin*), for references to Oregon birds. He then arranged these references in alphabetical order by author, from “Anonymous” (20 pages) to three entries by Luther Wyman. Each entry is numbered (the total is 1,946) and accessible through four indices by species, key word, county, and year of publication.

Wondering about that locality mentioned in the bibliography? No problem. Consult the 15-page gazeteer at the end of the book, and go then to the county map of Oregon opposite the table of contents.

How about your favorite species? Well, let's say mine is Peregrine Falcon. Looking it up in the species index (which, brilliantly, is organized in phylogenetic order, thus eliminating the problem of changing names over the decades), I find there are 48 entries, among which are a couple by Allan Brooks, describing the nesting of the subspecies *pealei* on the Oregon coast (the southern extent of the range of this geographic race).

Might you have some curiosity about the history of the introduction of game birds to Oregon? Well, you should, because browsing this subject yields much of interest, including a bizarre 1923 note from a pre-eminent giant of Oregon ornithology, William L. Finley, entitled “Further indictment of the Brewer Blackbird.” “Brewer's Blackbirds killed Ring-necked Pheasant chicks at the state game farm near Corvallis,” Jobanek summarizes, and then quotes Finley: “There is a taint of murder in this yellow-eyed black race.” And this little tidbit of ornithoracism was published in *Condor*!

All of the giants are here, complete with portrait photographs: Finley, Florence Bailey, Bendire, Bohlman, Cooper, Coues, Gabrielson, Grinnell, Jewett (his 1934 paper, “The mystery of the Marbled Murrelet deepens,” sets the stage for the solution, which came some 40 years later), Oberholser, Swarth, Willet. One can follow careers in this book. The lesser actors are in many cases more fascinating than the stars, and well chosen photographs of them are here, too. Charles W. Bowles is shown in his “elevated camp” (essentially a canvas treehouse). In the caption, Jobanek describes Bowles: “an enigmatic character, Bowles collected birds in southwestern Oregon while maintaining a tenuous hold on his sanity. He was the brother of the Washington ornithologist J. Hooper Bowles, who himself committed suicide in 1934” (by lying down in front of a streetcar in Tacoma, I think).

This book is simultaneously a work of great scholarship and a source of enlightening entertainment. All professional ornithologists will need it, all serious Northwest birders will benefit from it, and folks in between and beyond those categories will enjoy it. If you don't buy a copy, be sure it finds its way to the shelves of your favorite library.

Steven G. Herman, *The Evergreen State College*  
Olympia, Washington 98505

Manuscript received 22 November 1997

**Michael R. Smith, Philip W. Mattocks, Jr., and Kelly M. Cassidy. 1997. Breeding birds of Washington state. Volume 4 in Washington State Gap Analysis—final report (K. M. Cassidy, C. E. Grue, M. R. Smith, and K. M. Dvornich, eds.). Seattle Audubon Society. Seattle. ISBN 0-914516-09-4. 552 pp. \$30.**

In 1987, birders in Washington set out for the woods with data cards in hand for the newly initiated Breeding Bird Atlas project, sponsored by the Seattle Audubon Society. In the ten years that followed, over 600 volunteers contributed over 5800 atlas cards, representing more than 100,000 data points. Field work was originally planned for completion in 1991 and publication soon after that; but after an extension to include the 1992 season, the project stalled. The primary reason was that despite the mountain of data collected, it was still far from enough. Too many areas in Washington remained unsurveyed. Some of the contributors began to wonder if the results of their efforts would ever be seen in print.

The delay was actually a blessing in disguise, because without it, the Washington Gap Analysis Project would never have become involved. The Gap team was ramping up in 1993-1994 and needed a large data set to test the accuracy of predicted breeding ranges that they were creat-

ing, using the latest in geographic information system (GIS) technology. Under this stimulus the Breeding Bird Atlas revived, and by 1995 the two projects essentially had merged. It was (to use an old cliché) a match made in heaven.

The final results of this partnership have been produced in a generous 8.5 x 11-inch page format. A 12-page Introduction outlines the history, methodology, and coverage of the atlas project and plainly explains the methods used to produce the habitat models and distribution maps. The species accounts include all of the 260 species known or believed to have bred in the state since European contact. Two full pages are devoted to most species, with the species account on the left-hand page and a distribution map facing it. There are 244 maps, one species per map except for Pacific Slope/Cordilleran Flycatchers and American/Northwestern Crows, which share their maps. The 14 mapless species are all historic, uncertain, occasional, or extremely local breeders in Washington (Horned Grebe, Brandt's Cormorant, Trumpeter Swan, American Black Duck, Scaled Quail, Semipalmated Plover, Arctic Tern, Ancient Murrelet, Yellow-billed Cuckoo, Acorn Woodpecker, Sky Lark, Northern Mockingbird, Bohemian Waxwing, and Golden-crowned Sparrow).

The maps are large and printed with a high level of resolution. The predicted distribution of each species is represented by using two shades of gray: a darker one for habitats in core zones, and a lighter one for habitats in peripheral zones. Superimposed on the predicted range are the actual atlas data. Symbols indicate each atlas block (one quarter of a Township/Range) where a particular species was noted in suitable habitat during the nesting season, together with the evidence level (confirmed, probable, or possible). For a few species designated as endangered or sensitive, breeding data are generalized to whole Township/Ranges.

The text for each species is divided into three sections. First comes a broad characterization of its breeding status and distribution, then a description of the habitat model used to create the predicted distribution map, and, finally, comments, the nature of which varies from species to species. Here, you will find information about the various subspecies that breed in the state and a general discussion of what is and is not known about the given species. In the back of the book are two color maps that show the vegetation zones and the land cover for the state. Also included is an index to English and Latin species names and an extensive list of references cited in the text.

*Breeding Birds of Washington State* is a scholarly work that both amateurs and professionals will find useful. It is thoroughly researched and well written. The maps are large, easy to read, and represent a new standard for the careful matching of actual distribution with preferred habitat. Let us hope that this example will be followed, and that the era of distribution maps penciled in by hand with broad, flowing lines will soon be past. As with any work of this type and scale, one could pick the

maps apart and find small errors and inconsistencies if one looked hard enough. The authors acknowledge and fully explain the faults and limitations of the use of the technology involved. However, I would say that the degree of accuracy and detail represented in this work far exceeds anything else available at this time. All in all, I can find little to criticize. One small oversight that I did come across is that the terms used to describe relative abundance, such as common and uncommon, are not defined anywhere in the text and are left to the interpretation of the reader.

The only disappointment I have is with the book's appearance. The cover design is uninspiring. The title is so inconspicuous and understated that one has difficulty distinguishing the front of the book from the back. The inside text is more problematic. Apparently, very little was invested in typesetting and graphic design. The typeface for the tables and graphs is the same as for the body of the text. In the Introduction, no indentation is used for paragraphs, which makes them look like captions when they occur beneath tables and graphs.

Weaknesses in visual appeal are more than made up for by the strength of the contents, however. I strongly urge all those with an interest in the birds of Washington to make this volume a part of their libraries. Washingtonians have waited a long time for *Breeding Birds of Washington State*. I am sure that everyone will find that it was well worth the wait.

Russell Rogers, *The Evergreen State College*  
Olympia, Washington 98505

Manuscript received 23 November 1997

**R. Wayne Campbell, Neil K. Dawe, Ian McTaggart-Cowan, John M. Cooper, Gary W. Kaiser, Michael C. E. McNall, and G. E. John Smith. 1997. Birds of British Columbia. Volume 3: passerines: flycatchers through vireos. UBC Press. Vancouver. (United States distributor University of Washington Press, Seattle). ISBN 0-7748-0572-2. 696 pp. US \$70.**

The first two volumes of *Birds of British Columbia*, published in 1990 by the Royal British Columbia Museum, were acclaimed as one of the most important ornithological works in recent times. The third volume has now appeared, and it is every bit as good. Two decades of research and writing thus far have gone into the creation of the projected four-volume set. The authors' skills and backgrounds range from research biology to wildlife and habitat management, from museum collections to biometrics and computer programming. In addition, over 10,000 bird enthusiasts provided information for the species accounts.

For this third volume, much greater use of electronic data processing permitted the authors to work quickly and accurately with large number sets (over 500,000 individual records!) and to undertake more refined and standardized interpretation of data. Seventy-eight species of regular occurrence are presented in complete detail, while 13 casual or accidental species are treated more summarily. Included are the tyrant flycatchers, larks, swallows, corvids, chickadees, bushtit, nuthatches, creeper, wrens, dipper, muscicapids, mimids, accentor, motacillids, waxwings, shrikes, starlings, and vireos. The text of the species accounts discusses status and changes in status, seasonal movements, and breeding and non-breeding distribution and habitat. Commentary on nests, eggs, young, Brown-headed Cowbird parasitism, and nest success is extensive—and remarkable. Accounts are copiously illustrated with excellent color photographs. Individual species receive full-page maps of breeding and non-breeding distribution in British Columbia, charts of seasonal and year-to-year population fluctuations, summaries of noteworthy records arranged by region and season, and small maps indicating greatest summer and winter abundance by ecoprovince. Each account concludes with remarks that summarize details of subspecies, difficult identification problems, increases or decreases in population, and other useful information. Following the accounts, 100 pages of appendices present data, species by species, for migration chronology, Christmas Bird Counts, and Breeding Bird Surveys. Highly readable endpaper maps, in color, show the ecoprovinces and biogeoclimatic zones of British Columbia.

Leaving aside the introduced Crested Myna, very few of the regular members of the British Columbia avifauna profiled in this volume are absent from the Washington check-list. The book is, therefore, quite pertinent for understanding bird life in our state. One group of special interest for Washington birders is the "eastern" species whose breeding ranges extend to the sub-boreal, boreal, and taiga regions of central and northern British Columbia, but not to Washington. These include Least Flycatcher, a scarce annual visitor to Washington with one known nesting record in recent years; Eastern Phoebe, Gray-cheeked Thrush, and Philadelphia Vireo, with one or two Washington records apiece; and Yellow-bellied Flycatcher, Alder Flycatcher, and Sprague's Pipit, for which there are no adequately documented Washington records to date.

Sightings of any of these should be expected in coming years, but none is more overdue than the Alder Flycatcher, which has been expanding its breeding range down into southeastern British Columbia. Those who would look for this species in Washington will find much valuable information and advice in this book, especially concerning the song. It was on the basis of field studies conducted in central British Columbia by R. C. Stein, in 1958-1959, that Willow Flycatcher and Alder Flycatcher were eventually split into two separate species. Our authors agree with Kaufman that the song of the Alder Flycatcher is not a three-syllable

*fee-bee-o*, as usually described, but a two-syllable *rrree-weet*, with a faint third syllable (as in *rrree-beea*) which is often inaudible or not produced. They report an anecdote of several "quite experienced" birders who pointed out what they thought were hybrid songs, but which were in every case a two-syllable song of an Alder Flycatcher. Stein, they remind us, "notes two cases where a bird apparently sang both *fee-bee-o* and *fitz-bew* songs, although he concluded that the *fitz-bews* were 'combinations of *pits* and *wee-oo's*' of the Alder Flycatcher." Two of the authors "heard a song under good conditions in the Revelstoke area, where both species occur, that appeared to be intermediate between the two, leaning more towards the Willow than the Alder song." Similar observations made in North Dakota by Stewart are also noted. Conclusion? "Experience and caution are required . . . when reporting Alder or Willow Flycatchers from areas of sympatry." Washington birders, take heed!

The section on rarities, at the end of the regular accounts, includes the Dusky Thrush that many a Washington birder saw during its 93-day stay southeast of Langley in the winter of 1993, illustrated with a fine photograph by Dick McNeely of Bellingham. On the opposite page is a beautiful photograph of British Columbia's first Siberian Accentor, near Tappen, taken by Ruth Sullivan of Tacoma in April 1994.

*Birds of British Columbia* is not a field guide that one would pack around for determining field marks among species. It is a reference work that supplies tremendous knowledge of habitats, breeding, movements, and other essential data, intended for all students of ornithology, particularly in the Pacific Northwest. Birds cross borders. So, thankfully, does bird information. This publication sets the standard for our region. Washington birders should not hesitate to purchase it.

Bruce LaBar, 814 North Trafton Street, Tacoma, Washington 98403

Manuscript received 10 December 1997



## CONTRIBUTORS

**Kevin Aanerud** presently serves as the chairperson of the Washington Bird Records Committee. An active birder in the Seattle area for more than 20 years, he is a frequent field trip leader and occasional lecturer for the Seattle Audubon Society. Kevin is a member of the Union Bay Advisory Committee established by the Center for Urban Horticulture of the University of Washington. He makes his living as a classical pianist.

**Tom Aversa** has been presenting free-flight raptor demonstrations for the Woodland Park Zoo since moving to Seattle two years ago. He holds a B.S. degree in wildlife biology from the University of Massachusetts, Amherst, and has recently completed the Seattle Audubon Society's Master Birder program. An elective member of the Nuttall Ornithological Club, Tom has published birdfinding articles and field notes on Massachusetts as well as articles on tropical birds. Before coming west, he specialized in African birds at Boston's Franklin Park Zoo.

**Joseph B. Buchanan** is leader of the Forest Wildlife Unit in the Wildlife Diversity Division of the Washington Department of Fish and Wildlife. His current responsibility is to assist in the development and review of landscape-level conservation plans for forest wildlife. He has conducted research on a variety of bird and mammal species, including the Spotted Owl and various shorebird and falcon species. Joe has an M.S. degree in wildlife sciences from the University of Washington.

**Kelly M. Cassidy** has a Ph.D. in botany from Washington State University. She currently works for the Washington Cooperative Fish and Wildlife Research Unit at the University of Washington and leads the Washington State Gap Analysis Project, which has the goal of identifying conservation priorities for the state using spatial data for vegetation and animal distributions. Kelly is co-author of *Breeding Birds of Washington State*, recently published by the Seattle Audubon Society.

**Frederick C. Dobler** has spent the last 24 years working for the Washington Department of Fish and Wildlife. For most of that time, he has studied endangered species and habitats, including the Peregrine Falcon, the pygmy rabbit, and eastern Washington shrub steppe. Currently, he is a regional wildlife program manager in Vancouver.

**Joseph R. Evenson** received his B.S. degree from The Evergreen State College in 1990. From 1989 to 1995 he worked with Cascadia Research Collective on the identification of Washington estuaries important for shorebirds, as well as on numerous marine mammal studies. He currently serves on the Cascadia board. Since 1994 he has been employed as a biologist with the Washington Department of Fish and Wildlife under the ma-

rine bird and mammal component of the Puget Sound Ambient Monitoring Program.

**Steven G. Herman** is a member of the faculty at The Evergreen State College. He has a Ph.D. in zoology from the University of California, Davis. The author of *The Naturalist's Field Journal* (Buteo Books, 1986) and of numerous papers on the Peregrine Falcon, shorebirds, and birds of the shrub steppe (among others), Steve has served on the faculty and board of the Malheur Field Station. He was named Environmental Scientist of the Year by the Washington Environmental Council in 1984 and Conservationist of the Year by the Seattle Audubon Society in 1994.

**Jerry Hickman** is a native of Genesee, Idaho, who has worked his whole life between the Cascades and the Rocky Mountains. He is currently employed by the Washington Department of Fish and Wildlife. A life-long birder, Jerry has prepared bird guides for Lincoln and Spokane counties and has taught ornithology and natural history at both the community college and high school levels.

**Bruce LaBar**, a birder for 27 years, works as an ocean bird observer on the NOAA ship McArthur and on Terry Wahl's Westport pelagic trips. A former resident of California, Bruce served as vice president and field trip director for the Santa Cruz Bird Club and compiled the Santa Cruz Christmas Bird Count for ten years. He is a frequent field-trip leader for the Tahoma Audubon Society and other organizations.

**Philip W. Mattocks, Jr.**, teaches biology and physiology at Central Washington University. Phil directed the Washington Breeding Bird Atlas, and is longtime compiler of the Seattle and Ellensburg Christmas Bird Counts; past regional editor for *American Birds*; past officer of the Washington Ornithological Society; secretary of the Washington Bird Records Committee; president of the Kittitas Audubon Society; and co-author of *Breeding Birds of Washington State*, published by the Seattle Audubon Society. He received his doctorate in zoology from the University of Washington.

**Jay McConaughy** has 11 years of experience as a biologist, including research on eastern and western neotropical songbirds, colonial waterbirds, the Piping Plover, and the Bald Eagle. Since 1993 he has worked for the Washington Department of Fish and Wildlife, representing the Department on issues impacting fish and wildlife at the Hanford Site. Jay serves as vice chair of the Hanford Natural Resource Trustee Council.

**Paula Mertz** worked with the Washington Department of Fish and Wildlife as a survey biologist in 1992, conducting surveys for a wide variety of wildlife species in Adams, Douglas, Grant, and Lincoln Counties.

**Russell Rogers** is a contract biologist for The Nature Conservancy of Washington and a graduate student in environmental studies at The Evergreen State College. He is presently studying the restoration of prairie landscapes of the south Puget Sound. A past director of the Washington Ornithological Society, Russell serves as compiler of "Washington Field Notes," published in *WOSNews*, and as subregional editor for *Field Notes*. He is also an active bird-bander and field-trip leader.

**Lori J. Salzer** is a birder and a graduate of the wildlife program at The Evergreen State College. Since 1990 she has been employed as a wildlife biologist by the Washington Department of Fish and Wildlife, where she manages the Spotted Owl and reptile/amphibian databases and does survey work on non-game species.

**Andy Stepniewski** is interested in the study and conservation of ecosystems, especially those of eastern Washington, and in the status and distribution of birds in that region. His numerous publications and contract reports include *Birds of the Yakima River Canyon* (Bureau of Land Management), *Birds of the North Slope* and *Birds of the Yakima Training Center* (The Nature Conservancy), and *Birds of Yakima County* (in press). Andy is a past director of the Washington Ornithological Society and a current member of the Washington Bird Records Committee.

**Kent Woodruff**, a wildlife biology graduate of Colorado State University, has worked for 21 years for a variety of state, federal, and private organizations throughout the country. He is presently a district wildlife biologist with the Methow Valley Ranger District of the U.S. Forest Service. His current responsibilities for the District include coordination of a long-term monitoring project on Northern Goshawks, a hawk migration observation study, and a songbird inventory. Kent is editor and co-publisher of *The Methow Naturalist*.

## WASHINGTON ORNITHOLOGICAL SOCIETY

Founded 1988

*"...to increase our knowledge of the birds of Washington and to enhance communication among all persons interested in those birds."*

Board for 1997-1998

President: Marcus Roening, 1017 N Cedar Street, Tacoma 98406  
 Vice President: Scott Morrison, 1516 Tenth Avenue SW, Olympia 98502  
 Secretary: Brian Bell, 16440 NE 160th Street, Woodinville 98072  
 Treasurer: Buffi Strickland, 2632 42nd Avenue, #403, Seattle 98116  
 Directors: David Jennings, Martha Jordan, Bill LaFramboise, Diann MacRae, Thomas O'Connell

### Membership Information

All persons interested in the birds of Washington are invited to join the Washington Ornithological Society (WOS). Annual dues are \$20 for individual membership, \$25 for family membership (two votes, single copy of publications). Make checks payable to the Washington Ornithological Society and send to the address below.

WOS sponsors the Washington Bird Records Committee and publishes the *Field Card of Washington Birds*. Members receive the periodic journal, *Washington Birds*; the Society's bimonthly newsletter, *WOSNews*; and a membership directory.

WOS meets on the first Monday of each month at the Center for Urban Horticulture, University of Washington, Seattle. WOS holds an annual conference, alternately east and west of the Cascades, with workshops, speakers, exhibitors, and field trips.

Washington Ornithological Society  
 Post Office Box 31783  
 Seattle, Washington 98103-1783

## CONTENTS

CHECK-LIST OF WASHINGTON BIRDS (FOURTH EDITION).....	1
.....Washington Bird Records Committee	
THIRD REPORT OF THE WASHINGTON BIRD RECORDS COMMITTEE.....	7
.....Kevin Aanerud and Philip W. Mattocks, Jr.	
AN OBSERVATION OF CARRION FEEDING IN COOPER'S HAWK.....	32
.....Tom Aversa	
SEASONAL ABUNDANCE OF SHOREBIRDS AT PUGET SOUND ESTUARIES.....	34
.....Joseph R. Evenson and Joseph B. Buchanan	
POTENTIAL SNOWY PLOVER HABITAT IN EASTERN WASHINGTON.....	63
.....Joseph B. Buchanan, Lori J. Salzer, Frederick C. Dobler, Paula Mertz, Jay McConnaughey, and Jerry Hickman	
SNOWY OWL IRRUPTION INTO WASHINGTON AND VICINITY DURING THE WINTER OF 1996-1997.....	68
.....Kelly M. Cassidy	
GREAT GRAY OWLS BREEDING IN WASHINGTON.....	83
.....Andy Stepniewski and Kent Woodruff	
BOOK REVIEW: ANNOTATED BIBLIOGRAPHY OF OREGON BIRD LITERATURE PUBLISHED BEFORE 1935 (JOBANEK).....	88
.....Steven G. Herman	
BOOK REVIEW: BREEDING BIRDS OF WASHINGTON STATE (SMITH ET AL.).....	89
.....Russell Rogers	
BOOK REVIEW: BIRDS OF BRITISH COLUMBIA, VOLUME 3 (CAMPBELL ET AL.)..	91
.....Bruce LaBar	
CONTRIBUTORS.....	94



Copyright © 1997 Washington Ornithological Society  
Raven drawing copyright © 1989 Linda Feltner

Cover photo of Great Gray Owl nest, Okanogan County,  
18 May 1991, by Kent Woodruff