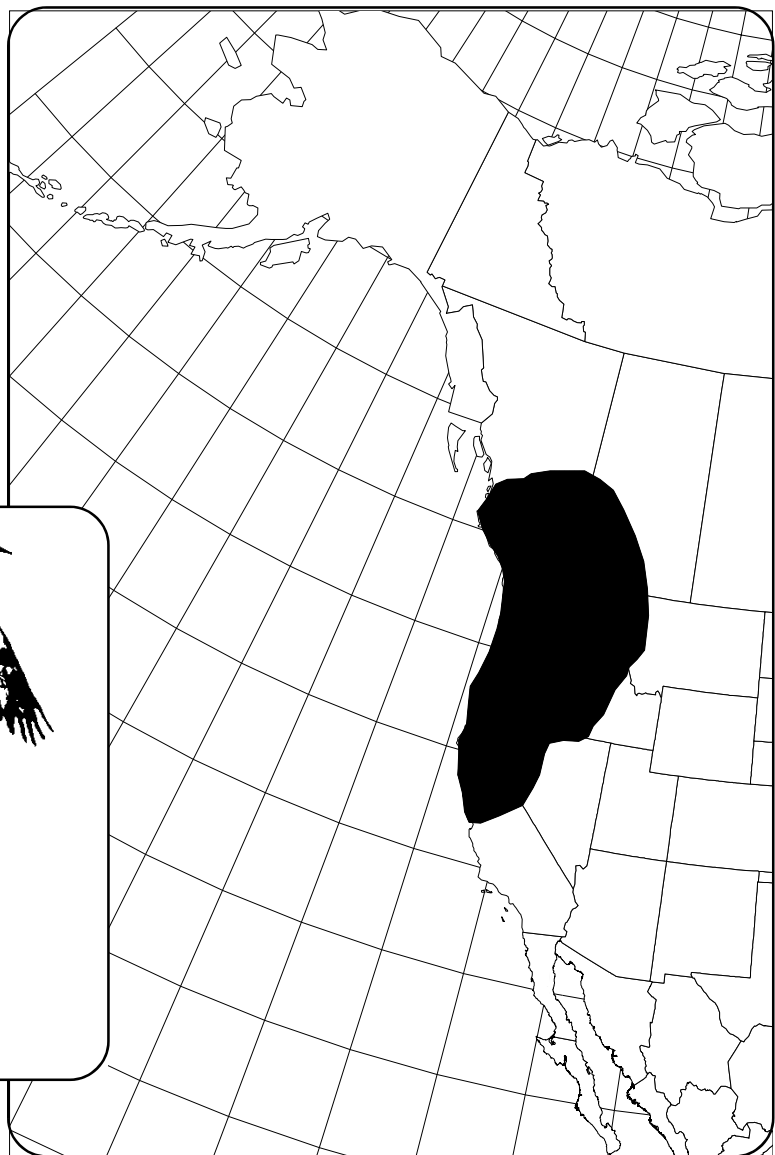
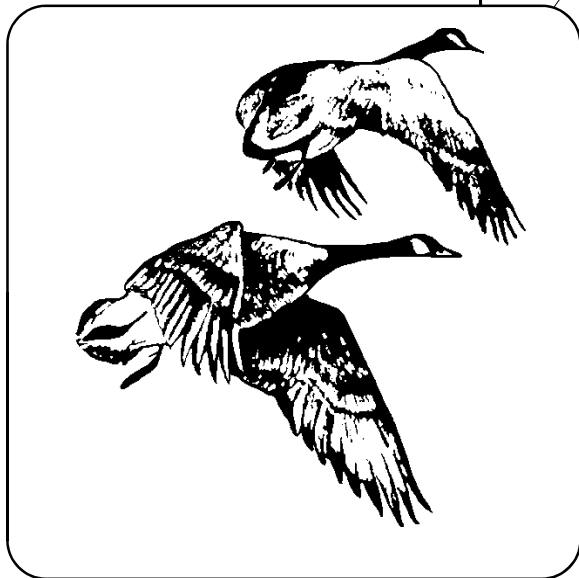


# Pacific Population of Western Canada Geese



**PACIFIC FLYWAY MANAGEMENT PLAN**  
**FOR THE**  
**PACIFIC POPULATION OF WESTERN CANADA GEESE**

Prepared for the

Pacific Flyway Council  
Canadian Wildlife Service  
U.S. Fish and Wildlife Service

by the

Subcommittee on the Pacific Population of Western Canada Geese  
Pacific Flyway Study Committee

Approved by: \_\_\_\_\_  
Chair, Pacific Flyway Council

\_\_\_\_\_  
Date

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## TABLE OF CONTENTS

	<u>Page</u>
SUBCOMMITTEE MEMBERSHIP .....	iii
LIST OF TABLES .....	v
LIST OF FIGURES .....	vi
LIST OF APPENDICES .....	vii
I. INTRODUCTION .....	1
II. GOAL AND OBJECTIVES .....	2
III. STATUS .....	4
Nomenclature .....	4
Distribution and Numbers .....	4
Use .....	5
IV. MANAGEMENT ISSUES .....	6
V. RECOMMENDED MANAGEMENT ACTIONS .....	7
Population Monitoring .....	7
Harvest management .....	8
Harvest Guidelines .....	8
Other Surveys and Banding .....	9
Depredation and Nuisance Problems .....	10
Research .....	11
Translocation Programs .....	11
Management Plan Review .....	12
VI. LITERATURE CITED .....	13
APPENDICES .....	14

LIST OF TABLES

	<u>Page</u>
Table 1. Population Index Objective Levels (3-year average) for Management Units .....	8

## LIST OF FIGURES

	<u>Page</u>
Figure 1. Management Units for the Pacific Population of western Canada Geese (modified from Krohn and Bizeau 1980) .....	3

## LIST OF APPENDICES

	<u>Page</u>
Appendix A. Breeding population surveys for the Pacific Population of western Canada geese, 1970 -1999 .....	15
Appendix B. Production indices (young) for the Pacific Population of western Canada geese, 1970 -1999 .....	16
Appendix C. Descriptions of breeding population surveys conducted by states and provinces for the Pacific Population of western Canada geese .....	17
Appendix D. Pacific Flyway Council Depredation Policy .....	19
Appendix E. Executive Summary from the March 1998 Pacific Flyway Management Plan for Northwest Oregon/Southwest Washington Canada Goose Agricultural Depredation Control .....	21

## I. INTRODUCTION

The western Canada goose (*Branta canadensis moffitti*) occurring within the Pacific Flyway is currently recognized for management purposes as consisting of two populations: the Pacific Population (PP) and the Rocky Mountain Population (RMP) (Krohn and Bizeau 1980). A large portion of the PP is relatively nonmigratory, with many segments wintering on or in close proximity to breeding areas, although more northern segments make annual migrations. In contrast, the RMP is primarily migratory with geese undertaking spring and fall migrations between breeding and wintering areas. Due to interstate and international distribution of certain flocks and shared management concerns, management of this resource requires interstate and international coordination.

The purpose of this plan is to improve coordinated management of PP western Canada geese by providing goals and objectives to guide wildlife agencies responsible for management programs for a five-year period.



## II. GOAL AND OBJECTIVES

The goal of this management plan is to maintain PP western Canada geese at a level and distribution that will optimize recreational opportunity and minimize depredation and/or nuisance problems in agricultural and urban areas.

Objectives of this plan are to:

- A. Monitor breeding population trends to assess levels relative to objectives outlined in Section V of this management plan;
- B. Maintain the currently known distribution of PP western Canada geese as illustrated in Figure 1;
- C. Maintain optimum sport harvest and provide for viewing, educational, and scientific pursuits;
- D. Assist in management of agricultural depredation and nuisance problems as outlined in the Pacific Flyway Depredation Policy (1998) and the NW Oregon/SW Washington Canada Goose Depredation Plan.

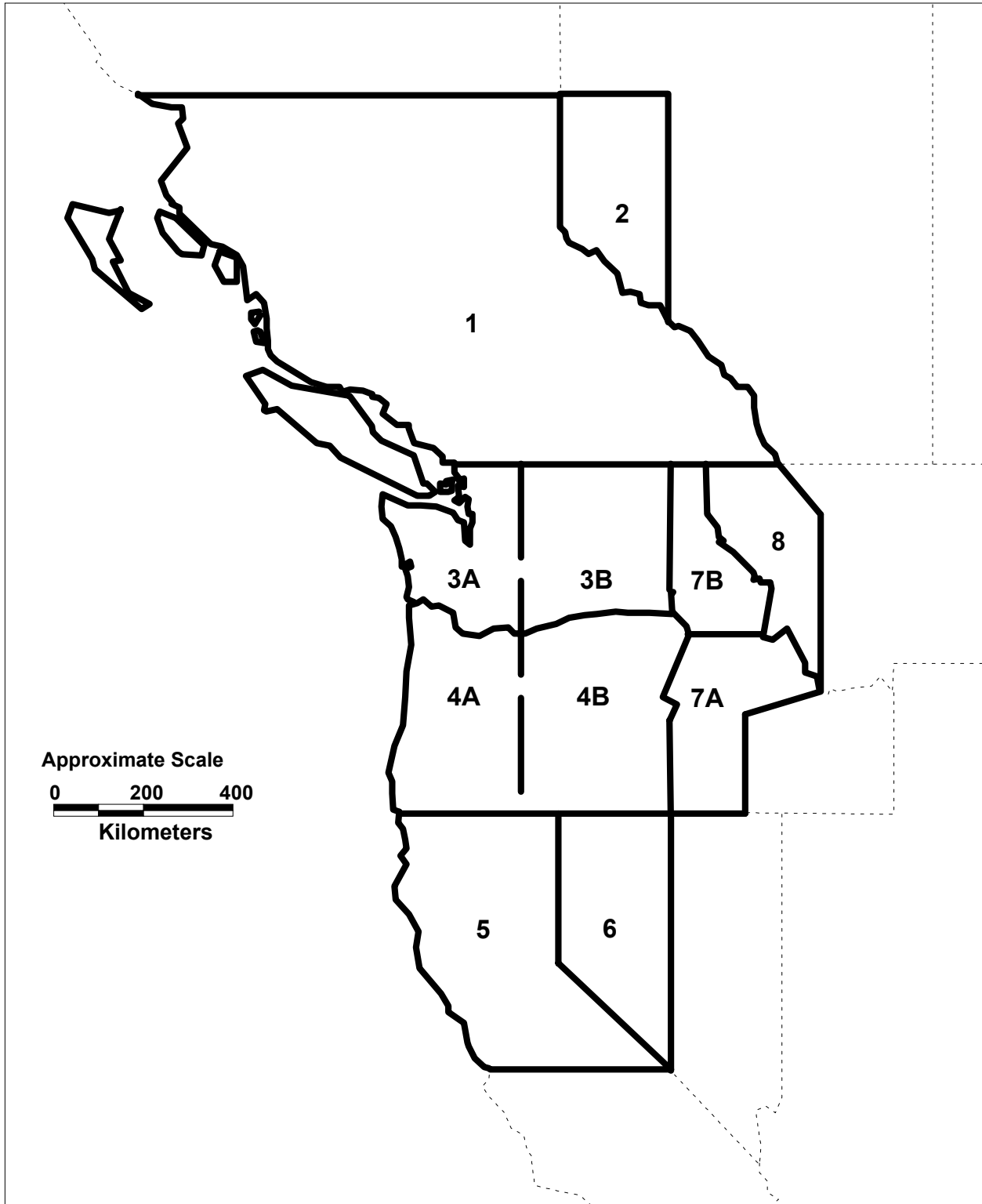


Figure 1. Management Units for the Pacific Population of western Canada Geese (modified from Krohn and Bizeau 1980).

### III. STATUS

#### Nomenclature

It was once assumed that western Canada geese consisted of a number of components or subpopulations, some with geographically distinct breeding and wintering ranges. Some of these subpopulations, such as the so-called Great Basin Population, never had their range clearly nor fully defined. However, even within a subpopulation, there is likely to be bird interchange resulting in genetic mixing during breeding periods. Genetic isolation for a subpopulation of PP western Canada geese has not been documented. Further, the recognition of distinct subpopulations has become somewhat clouded because of numerous translocation programs, many across state lines, during the past forty years and the general increase in large Canada goose populations.

Since 1989, the Pacific Flyway Study Committee has recognized and managed two Pacific Flyway populations of B.c. *moffitti*, the Pacific and Rocky Mountain populations (Krohn 1977).

#### Distribution and Numbers

PP western Canada geese breed in central and southern British Columbia, northwestern Alberta, northern and southwestern Idaho, western Montana, northwestern Nevada, northern California, and throughout Washington and Oregon (Krohn 1977). Although the majority of geese in the PP are generally nonmigratory, segments of the population do make annual migrations between established breeding and wintering areas. Molt migrations of nonbreeding PP western Canada geese occur annually to the Northwest Territories, north of the Saskatchewan-Manitoba border (Ball et al. 1981), to areas in Alberta and Saskatchewan, and to large bodies of permanent water near breeding grounds (Ball et al. 1981; Rienecker 1987).

The population status and range of PP western Canada geese is not well defined in British Columbia and Alberta. Limited band recovery data from large Canada geese banded in northwestern Alberta indicate that the recoveries from this area occur in central and southern British Columbia, Washington, Oregon, and northern California (Bartonek, 1991). The migration affinity of this segment of the population more closely resembles that of Pacific population birds than that of either the Rocky Mountain or Hi-Line populations that occur in central and southern Alberta. For purposes of this management plan, the Canada geese breeding in strata 76 and 77 of the May breeding waterfowl survey will be included as Pacific Population birds.

PP western Canada geese have been very successful in expanding their breeding range and are commonly found throughout most suitable habitats. Whether through transplant programs or natural pioneering, PP western Canada geese have expanded their historic distribution significantly over the past two decades. This range expansion has been facilitated by the popularity of PP western Canada geese with wildlife managers and the public. Numerous management programs, such as artificial nesting structures, have been implemented to increase production of western Canada geese. A number of state and federal wildlife management areas

currently have active programs to promote western Canada goose populations. Private agricultural practices and residential/park developments have also significantly increased and improved habitats used by Canada geese.

To facilitate management of the PP western Canada goose populations and evaluate management unit designations, the subcommittee reviewed all banding data through multi-response permutation procedure or MRPP (Zimmerman et al., 1985, Biondini et al., 1988). This analysis grouped banding degree blocks based on band recovery distributions. Groupings of banding blocks were generally consistent with past management unit designations. Some questions remain regarding delineations between PP and RMP populations, and further analysis will be necessary before recommending changes in the boundary between the two populations.

Unlike the previous management plan for PP geese which defined five management units that crossed state and international borders, units for managing this populations will now be delineated by state and provincial boundaries (Figure 1). Subunits are also established in Washington (west and east of the Cascade Mountains), Oregon (west and east of the Cascade Mountains) and Idaho (southwest and panhandle region). Because survey methodologies differ among states/provinces, population trends can be analyzed most accurately by existing monitoring at state/provincial levels. Although movements among states/provinces do occur (as evidenced by banding data and MRPP analysis), definition of units based on state/provincial boundaries facilitates development of season regulations which traditionally differ by state/province. Where similar populations occur across state/provincial boundaries (e.g. where a river used by nesting geese is a boundary), the subcommittee will review all information available to assist in management decisions and resolve conflicts.

While there is movement of geese among states and provinces, there are generally distinct breeding and wintering areas for concentrations of relatively non-migratory western Canada geese. In cases where similar segments of the population occur across state boundaries and management issues exist between states, the subcommittee will review all information available to facilitate management decisions. Breeding pair and production indices of PP western Canada geese are summarized in Appendices A and B.

### Use

Throughout much of their range, PP western Canada geese are preferred by hunters because of their large size and wide distribution. Western Canada geese are also of interest to the public for observation on wildlife areas and private lands. Transplants and natural movements of Canada geese into urban areas have afforded many people with the opportunity for close wildlife viewing, however some expanding urban flocks have created nuisance problems that necessitate specific management actions.

#### IV. MANAGEMENT ISSUES

The following priority listing describes major management issues involving the PP western Canada goose population. These issues are addressed in Section V - Recommended Management Actions.

A. Population Delineation/Status Information: Consistent databases will be increasingly important for intensive management of PP western Canada geese. Rapidly expanding numbers of Canada geese throughout many areas create conflicts with human land use activities. Reliable population size and distribution data are needed to improve management decision-making. Coordinated population surveys and banding programs will be crucial.

B. Depredation and Nuisance Complaints: Depredation of agricultural crops by PP western Canada geese occurs throughout their range and this problem is increasing significantly in many areas. In addition, nuisance problems in urban settings, such as parks and golf courses, have become more prevalent in recent years. The U.S. Department of Agriculture is responsible for assisting landowners in dealing with depredations or nuisance complaints but funding in recent years has been minimal or nonexistent. More aggressive management actions including the use of kill permits, egg destruction, and translocation programs are being urged by some groups. These actions need to follow Pacific Flyway Council policies and management plans addressing depredation issues.

C. Harvest Surveys: Current federal and state harvest surveys lack the necessary refinement to reliably measure the subspecies, population, or other management unit composition of the harvest. Consequently, the overall harvest of PP western Canada geese is difficult to assess and the use of historical harvest data alone for management decisions is not possible.

## V. RECOMMENDED MANAGEMENT ACTIONS

The following management actions are recommendations; the degree and timing of their implementation by the various wildlife agencies will be influenced by personnel, fiscal, and legislative constraints beyond the scope of this plan. Whenever possible, management actions should be coordinated and incorporated into species and/or habitat management plans for other migratory birds in the Pacific Flyway.

### Population Monitoring

The PP western Canada goose subcommittee will meet twice a year to discuss the status of PP western Canada geese and make recommendations for hunting seasons, including special September seasons, to the Study Committee and Flyway Council. Population monitoring and harvest information is to be reported to the Nevada Division of Wildlife subcommittee representative by July 1 of each year.

The following provides summaries of current state and provincial population survey methodologies conducted to assess the status of PP western Canada geese relative to population objectives:

Aerial Canada Goose Breeding Pair Index Surveys - Idaho, Nevada

Aerial Breeding Population Surveys (all waterfowl) - California, Oregon, Washington

Aerial Canada Goose Production Surveys - California, Montana

Cooperative USFWS-CWS May Waterfowl Breeding Population Survey – Alberta, Montana

Nesting Surveys - Washington

Appendix C contains a summary of state and provincial surveys that measure Canada goose populations.

The subcommittee recognizes the need to standardize survey methods whenever possible. A higher priority should be placed on obtaining breeding pair information rather than a total population or production inventory. Data collection methods could be modified in Montana, Washington, Oregon and California to meet this goal.

Lead Agencies:	All states and provinces, CWS, USFWS
Priority:	1
Schedule:	Begin review and formulate recommendations by 2001.

## Harvest Management

Where possible, breeding pair indices will be used to establish population objectives. However, where breeding pair surveys are not conducted, total geese or nests will be the indices used to establish objectives. The following population objectives will assist in annual harvest management recommendations:

Table 1. Population Index Objective Levels (3-year average) For Management Units.

Unit	Restriction Level	Liberalization Level
1 - British Columbia	8,500 pairs	12,500 pairs
2- Alberta	18,750 geese	31,250 geese
3a- Western Washington	800 nests	1,500 nests
3b - Eastern Washington	1,300 nests	2,000 nests
4a- Western Oregon	8,000 geese	14,000 geese
4b - Eastern Oregon	36,000 geese	60,000 geese
5 - California	1,000 pairs	1,250 pairs
6 - Nevada	600 pairs	1,000 pairs
7a - Southwest Idaho	1,000 pairs	1,500 pairs
7b - Panhandle Idaho	120 nests	200 nests
8 - Montana	1,200 geese	2,000 geese

Note: Objective levels are based on current state survey methodologies.

## Harvest Guidelines

1. When the 3-year average population index is under the Restriction Level, harvest restrictions should be considered.
2. When the 3-year average population index is between the Restriction Level and the Liberalization Level, minor harvest adjustments may be considered to address areas of concern within a unit or subunit.
3. When the 3-year average population index is above the Liberalization Level, consideration should be given to increase harvest rates.

The PP western Canada goose subcommittee seeks to manage the population on the basis of management units, primarily considering breeding population status. Appendix B provides

additional population status information for management units. All available information for a management unit will be reviewed when formulating recommendations for harvest seasons.

Lead Agencies: PP western Canada goose subcommittee in coordination with all states and provinces

Priority: 1

Schedule: Annually

#### Other Surveys and Banding

Annual Production Trend Survey: Nesting and/or brood surveys may be conducted in management units throughout the breeding range of PP western Canada geese. Survey methods may differ between areas and states but should be consistent among years for analyses of trends. Brood surveys supplement breeding population data, and can be useful to determine annual recruitment. Needs for expanded surveys will be reviewed by the subcommittee.

Lead Agencies: All states and provinces, CWS, USFWS

Priority: 3

Schedule: Annually; begin review for new surveys in 2002.

Midwinter Waterfowl Surveys: Canada geese are counted in all reference areas that support concentrations of wintering geese during the Midwinter Waterfowl Survey, normally conducted during the first week in January. However, specific data on PP western Canada geese is lacking or cannot always be obtained when counting large flocks of mixed subspecies in some areas. Also, the Midwinter Waterfowl Survey is designed to obtain information for all waterfowl species, which is thought to reduce the accuracy of information for just Canada geese. However, the long-term trend data available provide information on distribution and relative abundance of Canada geese. The subcommittee will review available information on winter surveys during the planning period.

Lead Agencies: All states, USFWS

Priority: 3

Schedule: Develop survey needs and review potential implementation -2002; review progress annually

Harvest Surveys: Harvest surveys are needed that distinguish between Canada goose subspecies to assess the harvest trend of PP western Canada geese. Techniques are currently being tried to separate PP western Canada geese from other subspecies by using tail feathers obtained from



parts collection surveys. Some states collect morphological measurements on birds at hunter check stations and this data should continue to be collected. The subcommittee will review all harvest information available during the next year.

Lead Agencies: All states and provinces, USFWS, CWS

Priority: 2

Schedule: Develop survey needs and review potential implementation with a priority on the parts collection survey -2001; review progress annually

Banding Programs: Banding for monitoring harvest rates and recovery distributions within units will be conducted as needed and coordinated through the subcommittee. There is an identified need to conduct additional banding in northwestern Alberta (Grande Prairie - Falhert/Peace River - High Level) to further define the migration and population affinity of Canada geese that occupy this area.

Lead Agencies: PP western Canada goose subcommittee in consultation with all states, provinces, CWS, and USFWS.

Priority: 2

Schedule: Summarize banding data bases, including neck collar observations, in 2002; review new banding needs in 2002; implement priorities in 2003 and review progress annually

#### Depredation and Nuisance Problems

Increasing problems with depredation and nuisance resulted in the development of the Flyway Depredation Policy (Appendix D) and the NW Oregon/SW Washington Canada Goose Depredation Plan (Appendix E). The Flyway Council places a priority on expanded recreational hunting as a primary step in addressing depredation problems in agricultural areas. Current monitoring programs have supported liberalization in general seasons and the establishment of special September goose seasons in all states.

However, expanding flocks of resident Canada geese in urban areas are seldom part of annual surveys and these birds don't necessarily contribute to hunting recreation. All agencies should strive to implement programs and management actions to assist landowners both on agricultural and non-agricultural lands. However, stable funding sources to maintain assistance programs are needed. The need for specific urban goose management plans, with community input, may be necessary and should include a population-monitoring component.

Kill permits for resident Canada geese should be evaluated based on local needs. Actions could include take of birds, eggs or nests. The lethal take will provide for human health and safety, protect personal property, or allow resolution of other injury to people or property. In the case of shared populations, states will coordinate in the issuance of permits and management actions. The USFWS will issue take permits in consultation with states.

Flyway policies dealing with nuisance issues should be assessed annually and updated as necessary. An EIS concerning the take of resident Canada geese is currently being prepared by the USFWS and the criteria for issuance of take permits may change in the future. States should refer to flyway policies in all cases when making final decisions for actions dealing with depredation and/or nuisance problems.

Lead Agencies: All states and provinces, CWS, USFWS, USDA  
Priority: 1  
Schedule: Begin 2000; ongoing.

#### Research

The PP western Canada goose subcommittee shall recommend research and review solicited and unsolicited research proposals. The subcommittee will establish priorities for research on the need of the population as a whole. Priorities for projects within a state or province will be established by the initiating agency. Beginning in 2000 a review will be initiated by the subcommittee to compile priority needs for PP western Canada goose research that facilitates the implementation of this management plan.

#### Translocation Programs

Because of the existing wide distribution of PP western Canada geese and significant population growth in recent years, translocation programs designed for range expansion purposes must be coordinated through the subcommittee. Translocations of western Canada geese to new areas are discouraged, because geese moved to a new relocation site might create new problems in areas with already existing depredation and/or nuisance problems. In addition, potential disease problems can be spread via translocations. In the case of translocating geese away from a depredation area, any state that could potentially be affected shall be notified directly and through the subcommittee.

### Management Plan Review

The PP western Canada goose subcommittee will meet twice a year to review progress toward achieving the goal and objectives of this plan and to recommend revisions. The subcommittee shall prepare an annual status report to the Pacific Flyway Study Committee and the Pacific Flyway Council at their joint meeting in July. The report shall consist of summaries of population assessments described in Section V. Recommendations for harvest seasons will also be included.

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## **APPENDICES**

Appendix A. Breeding population surveys for the Pacific Population of western Canada geese, 1970-2000.

YEAR	British Columbia		Alberta		Washington		Oregon		California		Nevada		Idaho		Montana	3-YR
	Western	Eastern	Western	Eastern	Western	Eastern	Western	Eastern	Total	Western	Eastern	Southwest	Panhandle	Total		Average
1970					1,925				0	1,589	390			0	0	3,904
1971					1,955				0	1,481				0	0	3,596
1972					2,214				0	1,949	603			0	0	4,766
1973					2,339				0	1,757	513			0	0	4,609
1974				642	642				0	1,165	577			0	389	2,773
1975				691	691				0	1,247	387			0	381	2,706
1976				706	706				0	930	422			0	414	2,472
1977				793	793				0	1,135	402			0	568	2,961
1978				710	710				0	1,357	453			0	455	3,918
1979				682	682				0	1,262	267		94	0	550	3,840
1980				844	844				0	1,710	415		107	0	564	5,129
1981				1,212	1,212				0	1,780	679		137	0	521	4,970
1982				1,633	1,633				0	1,148	679		161	0	485	4,859
1983				1,888	1,888				0	1,101	659		113	0	624	5,382
1984				1,816	1,816				0	1,002	782		142	0	687	5,157
1985				2,037	2,037				0	910	900		151	0	621	5,655
1986				2,049	2,049				0	1,453	851		138	0	719	5,549
1987				2,247	2,247				0	960	981		145	0	723	6,520
1988				2,488	2,488				0	870	945		148	0	723	6,520
1989				2,153	2,153				0	848	854		237	0	814	6,954
1990				2,140	2,140				0	1,127	845		286	0	851	6,658
1991				2,173	2,173				0	918	687		317	0	892	7,369
1992				2,323	2,323				0	735	528		325	0	869	7,280
1993				2,434	2,434				0	748	473		294	0	992	7,107
1994				2,353	2,353			56,369	0	834	538		332	0	919	7,107
1995				2,369	2,369			45,984	0	473	626		380	0	950	28,723
1996				2,458	2,458			54,802	0	1,532	518		374	0	959	60,248
1997				2,395	2,395			60,936	0	634	669		402	0	939	72,284
1998				2,257	2,257			56,777	0	1,059	703		366	0	1,315	82,933
1999				2,709	2,709			85,945	0	831	870		359	0	1,173	134,339
2000				2,367	2,367			78,775 *	0	1,366	1,049		290	0	1,104	187,727
AVG.	291	1,769	2,531	10,589	62,798	73,388	1,158	641	1,435	251	1,289	762	30,290	2,130	206,483	176,183

Survey Type: Pairs, Geese, Nests, Geese, Pairs, Pairs, Pairs, Pairs, Pairs, Pairs, Pairs, Pairs, Pairs, Pairs, Pairs, Pairs, Geese

Montana = Total adults in April, Nevada = indicated pairs only.

\* = No survey or calculated number, either average or trend.

RESTRICTION LEVEL	8500	18750	800	1,300	8,000	6,000	1,000	600	1,000	1,200	47,270
LIBERALIZATION LEVEL (L)	12500	31250	1500	2,000	14,000	60,000	1,250	1,000	1,500	2,000	127,200

Percent Change From:

Prev. Yr.	20.0%	29.2%	-12.6%	3.1%	-5.7%	11.7%	64.4%	20.6%	1.2%	33.8%	5.9%	54.4%	10.0%
Prev. 5 yr. Av.	6.6%	51.9%	-8.4%	-6.6%	17.1%	26.7%	50.8%	54.9%	6.9%	8.3%	7.2%	55.3%	92.1%
Period of Rec.	60.9%	29.5%	-6.5%	22.2%	111.7%	25.2%	17.9%	63.7%	21.4%	54.6%	65.2%	123.7%	581.7%

**Appendix B. Production indices (young) for the Pacific Population of western Canada geese, 1970-2000.**

YEAR	Aerial - Young			TOTAL
	California	Nevada	Montana	
1970	5,240	318		5,558
1971	3,960	157	443	4,560
1972	5,900	345		6,245
1973	6,330	333		6,663
1974	4,930	431	389	5,750
1975	3,820	305	631	4,756
1976	3,270	156	760	4,186
1977	3,530	113	985	4,628
1978	5,430	298	1,086	6,814
1979	5,080	464	1,023	6,567
1980	5,443	413	601	6,457
1981	3,921	570	677	5,168
1982	3,616	593	844	5,053
1983	3,999	848	719	5,566
1984	2,078	861	796	3,735
1985	3,335	633	758	4,726
1986	5,851	506	785	7,142
1987	3,790	487	592	4,869
1988	2,701	475	732	3,908
1989	3,088	532	541	4,161
1990	3,689	498	910	5,097
1991	2,139	221	995	3,355
1992	1,340	411	1,566	3,317
1993	2,180	95	1,863	4,138
1994	2,482	313	2,042	4,837
1995	1,401	316	1,482	3,199
1996	4,208	298	2,051	6,557
1997	1,721	622	1,412	3,755
1998	2,325	278	1,591	4,194
1999	2,423	231	1,136	3,790
2000	1,759	--	--	1,759
<b>Avg.</b>	<b>3,580</b>	<b>404</b>	<b>1,015</b>	<b>4,855</b>

% Chg from  
 Prev. Survey           -27.40%  
 Prev. 5yr.               -27.18%

Appendix C. Descriptions of breeding population surveys conducted by states and provinces for the Pacific Population of western Canada geese.

### **California**

The California survey has been conducted since 1948. Historically, all major valleys and wet meadows in northeastern California are surveyed by air in early June. In 1982, the survey area was reduced in size and only 41 areas have been surveyed each year since then. Estimates from the U.S. Fish and Wildlife Service, from surveys conducted in the Klamath Basin in March, are added to the number of geese seen by the California Department of Fish and Game (CDFG) during the June survey in the numbers reported for California. CDFG does not survey the Klamath Basin in June. Due to the timing of the CDFG survey, the number reported as breeding geese consists of successful breeding geese only (those with goslings). Breeding geese are also tallied during the May duck breeding survey, which was revised in 1992, and this estimate is more representative of breeding effort. However, due to the long running nature of the June survey, for the purposes of this management plan, the number of geese in the June survey, combined with the USFWS estimate, is used herein.

### **Oregon**

A waterfowl breeding bird survey was initiated in Oregon beginning in 1993. Major production areas for ducks and geese are stratified and aerial transects are repeated annually. Major river systems are also counted. Counts are done by helicopter and fixed winged craft. Canada geese are counted as individual birds and numbers expanded for the stratum size to estimate the number of adult Canada geese.

### **Washington**

Canada goose breeding populations are surveyed in Washington using two different methods. Geese throughout eastern Washington and along the Columbia River in western Washington are surveyed in late April and early May using ground nest searches, on areas with high densities of nesting geese. In other parts of western Washington, geese observed from helicopters as singles and pairs on the late April duck surveys are counted as potential nests, and added to results from western Washington ground nest searches to yield a nest index for western Washington. Nest searches have been conducted on the same areas since 1982, although some areas are not surveyed each year (past counts are used in non-survey years). Aerial surveys of singles and pairs in western Washington have only been conducted since 1997.

### **Idaho**

In Idaho, western Canada goose population objectives are based on spring counts of breeding pairs. These counts are aerial goose pair counts in southwestern Idaho on the Snake, Payette and Boise Rivers. In northern Idaho, spring surveys consist of ground pair counts in selected important breeding areas.



## **Montana**

In Montana, the Service conducts a production survey in late May/early June that counts goslings only. The survey encompasses the Mission Valley, Flathead Lake, nearby wetlands and Waterfowl Production Areas, portions of the Flathead River, Swan River, Swan Lake, and other wetlands in the immediate area. In the past, a breeding pair survey was conducted but was discontinued because of limited funding.

## **Nevada**

Nevada has been conducting annual Canada goose breeding pair counts since the early 1960s on 57 key production sites. All but three sites are surveyed by air during the last week in March or first week in April. Two state wildlife management areas and one federal national wildlife refuge in the southern portion of the state are surveyed from the ground during the same time frame. Aerial breeding pair surveys are flown in a consistent manner and pattern as possible in an attempt to reduce annual variations. Since 1967, the same person has flown all but one annual survey.

Geese are recorded as pairs, singles or groups for each individual area. The number of paired birds and single are combined to develop the breeding pair index reported for the area and the state. All groups of three or more birds are classified as non-breeding birds.

In mid-May, the number of Canada goose broods and an estimated number of young for each brood are recorded during the aerial Duck Breeding Pair survey. This provides a trend index of annual production. All geese observed, without broods, during this survey are recorded and are assumed to be subadults or unsuccessful breeding birds. Large concentrations of flocked birds (>50) are assumed to be molting adults.

## **British Columbia**

The British Columbia Interior Wetland Survey was initiated in 1987 as a partnership between the Canadian Wildlife Service, Ducks Unlimited Canada, and the Wildlife Branch of the British Columbia Ministry of Environment, Lands and Park. Six counts are conducted in May on approximately 400 wetlands in the Interior of British Columbia. Data are collected to detect changes in overall numbers and numbers of breeding birds. Numbers of breeding birds are estimated as 'indicated pairs'.

## **Alberta**

Breeding population estimates of the Pacific Population of western Canada geese are obtained from the May waterfowl surveys conducted by the U. S. Fish and Wildlife Service and the Canadian Wildlife Service. Since 1998, Canada geese surveyed in Strata 76 and 77 in northern Alberta have been used to estimate the Pacific breeding population.

## Appendix D. Pacific Flyway Council Depredation Policy.

**Policy:** The Pacific Flyway Council (PFC) recognizes that the depredation of agricultural crops can become a serious economic problem in specific locations and that solutions often require complex biological, social, and political considerations. The challenge of managing damage by migratory game birds is striking the balance between maintaining game bird populations at levels that provide benefits to the majority of citizens while reducing the economic burden on the citizens who suffer losses.

Migratory birds are a shared international resource that provides significant benefits to the citizens of the United States and other countries. Federal authority to manage and protect migratory birds is derived from the Migratory Bird Treaty Act of 1918 [16 U.S.C. 503, as amended]. Through policy and practice the United States Fish and Wildlife Service (Service) shares the authority for the management of migratory gamebirds with the states through the Flyway Councils. The Fish and Wildlife Coordination Act (1956) authorizes the coordination between the states and Service for wildlife conservation purposes. Although the Service has been delegated the responsibility and authority for the management of migratory bird populations, the Animal Damage Control Act (1931, as amended in 1985 [P.L. 99-19]) delegates the federal responsibilities for conducting migratory bird damage control activities to the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services Division (WS). Many states within the Flyway have developed Memoranda of Understanding with WS for implementation of damage control activities in the states. Some states have additional statutory responsibilities to private landowners for depredations by migratory birds. Therefore, management of migratory birds including damage control throughout the Flyway should be considered the joint responsibility of state and federal agencies.

This Policy Statement establishes a set of principles developed so the PFC may respond to depredations in a consistent and fair manner.

### **Depredation Principles:**

- 1) Depredation control programs are subject to Flyway management plan objective levels and should include consultations with all affected agencies and stakeholders within the range of the subject populations.
- 2) Public hunting is the preferred method of population control for reducing agricultural depredations by migratory gamebirds.
- 3) When public hunting is not possible and non-lethal control options have been exhausted, other lethal control methods should be implemented. Other lethal population reduction methods should be determined on a case-by-case basis.

Therefore, it is the policy of the Pacific Flyway Council that depredation control programs be developed using the above principles and that management plans for control of regional migratory bird depredations be approved by the Pacific Flyway Council.



## EXECUTIVE SUMMARY

At the recommendation of the Pacific Flyway Council (PFC) (March 16, 1997, Recommendation No. 18), the U.S. Fish and Wildlife Service (USFWS), Oregon Department of Fish and Wildlife (ODFW), Washington Department of Fish and Wildlife (WDFW), Animal and Plant Health Inspection Service - Wildlife Services (WS) and the Oregon and Washington Farm Bureaus have participated in the development of a comprehensive nine-point plan to address the agricultural depredation problems associated with Canada geese in the Willamette Valley - Lower Columbia River (WV-LCR). This document was available for public comment and responses are available upon request from the Pacific Flyway Representative, 911 NE 11th Avenue, Portland, Oregon, 97232. Many of the proposed strategies contained in this document are, at present, unfunded by any agency or organization. Addressing many of the proposed strategies will require additional resources or reprogramming existing resources away from other high priority issues. Participation in the development of the plan should not be interpreted as endorsement of all options by the participating agencies or organizations.

### **Primary Goal:**

**The primary goal for this plan is to establish a systematic and comprehensive approach for minimizing depredation losses caused by Canada geese in the WV-LCR.**

The following primary objectives will be utilized to implement the plan. None of these objectives were intended to meet this goal alone, but, rather were established to work in concert and to provide a range of options to solve the problem. The primary objectives of the plan are:

1. **Wintering Canada Goose Population Objective:** Stabilize and eventually reduce the number of Canada geese wintering in the WV-LCR to minimize agricultural depredations on private lands. The objective is to limit the number of Canada geese wintering in the WV-LCR to no more than 133,000, the current population index (as measured by the midwinter inventory), and reduce the number of wintering Canada geese in the WV-LCR to 107,000 (20%, as measured by the same index) by the year 2002. Such reductions are to occur consistent with existing Flyway management goals for specific Canada goose populations recognized in the Pacific Flyway and the broad public interests throughout their range. The reductions will be achieved either through direct population reductions or redistribution of geese to other areas.
2. **Population Assessment and Monitoring Objective:** Develop and employ monitoring techniques to accurately assess goose populations, distribution and survival rates of Canada geese on breeding and wintering grounds. The objectives are to develop and implement

survey techniques to better assess the population status of all the Canada goose populations affiliated with the WV-LCR. This will involve improvements in both breeding ground and wintering area survey programs for these Canada goose populations. The use of mark-resight surveys to determine population size, distribution and survival of Canada geese wintering in WV-LCR will continue to be vital to the assessment of the management programs.

3. **Habitat Management and Public Use Objective:** Increase the amount of Canada goose use on public lands, while subsequently decreasing the amount of Canada goose use on private lands. The approach will be to review habitat management programs on Federal refuges and State wildlife areas to assure that everything possible is being done to provide abundant, high quality goose forage on public lands. Additionally, management agencies will implement public use restrictions on public lands to decrease harassment of wintering Canada geese and increase their use of these lands. Finally, management agencies will recognize private landowners for their role in providing Canada goose foraging areas on selected private lands and consider developing voluntary agreement, conservation easement, or coordinated hunting programs to address adverse agricultural impacts.
4. **Land Acquisition and Management Objective:** Decrease agricultural depredation of private lands by acquiring additional Canada goose habitats in the WV-LCR through fee title acquisition, donation, trade or easement. The approach will be to form a land acquisition working group consisting of personnel from USFWS, ODFW, WDFW and private conservation organizations to develop and implement a Canada goose habitat acquisition program. This group will be integrated with other existing agency efforts to maintain and enhance wildlife habitat throughout the WV-LCR region.
5. **Depredation Research Objective:** Objectively determine the severity and extent of winter goose grazing on private agricultural lands. The approach will be to conduct damage assessment studies of goose grazing impacts on grass seed, grain, vegetable crop and pasture lands in the WV-LCR to objectively determine the extent, amount and economic cost of damage from geese.
6. **USDA-APHIS Activity Objective:** Increase the capability of WS agents to assist private landowners in the WV-LCR to alleviate agricultural depredations caused by Canada geese. The approach will emphasize development of a WS hazing program designed to effectively monitor and address agricultural depredation complaints throughout the WV-LCR and to redistribute geese from areas where agricultural damage is occurring. Additionally, an evaluation will be conducted to determine the potential effectiveness of using depredation permits and/or orders consistent with Pacific Flyway policy to further reduce agricultural depredation by Canada geese in the WV-LCR. The relative and combined effectiveness of nonlethal and lethal control to address crop damage problems in the region will be reviewed during all stages of implementation. Lethal control methods would only be used on a limited basis and would be consistent with the existing Pacific Flyway policy on depredation control (Appendix D).

7. **Harvest Management Objective:** Increase Canada goose hunting opportunities in accordance with harvest guidelines in Pacific Flyway population management plans. The approach is to first utilize hunting opportunity during established open seasons to reduce agricultural depredation of Canada geese in the WV-LCR by increasing harvests to limit overall populations consistent with Flyway population management goals and to redistribute geese from areas where agricultural damage is occurring.
8. **Public Outreach Objective:** Increase public awareness of both the benefits and problems associated with Canada geese throughout the Pacific Flyway. The approach will be to develop a public outreach program to increase the awareness and understanding of Canada geese and agricultural depredation problems in the WV-LCR and the need for balance in addressing these problems in ways that maintain the benefits of geese to a larger number of consumptive and nonconsumptive users throughout their range. The intent is to increase awareness among all affected interests, particularly Oregon and Washington landowners and Alaskan native subsistence hunters, concerning the needs of all user groups, with a primary focus on achieving population management objectives for all Canada geese wintering in the WV-LCR.
9. **Funding and Implementation Objective:** Reduce agricultural depredations in the WV-LCR by increasing funding for Canada goose management activities and implementing all facets of the depredation plan. The approach will be to gain public acceptance of both the problem and the need for government action to address the problem in a constructive fashion such that the public at large will support increased expenditures for goose management.