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WATERBIRDS AT PONDS AND FIELDS IN THE SILETZ/LOGSDEN AREA OF LINCOLN COUNTY

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ABSTRACT.--This article is based on a total of 353 observations, many of which were systematic censuses.

At West Beaver Pond, Llewellyn made 225 observations of waterbirds during 1982-June 1993. He noted a total of 19 taxa; 53% were seen in five or more of the 10 years with many observations. Wood Ducks, Mallards, Ring-necked Ducks, and Hooded Mergansers nested or reared young at this Pond.

At the Siletz Sewage Ponds, Schrock and Faxon independently did almost all 29 observations during 1981-1989 and noted 32 taxa. There was no indication that any waterbirds nested or reared young here.

At Gravel Ponds near the Logsden Store, Llewellyn and Schrock independently made almost all of the 58 observations during 1983-1991. A total of 21 waterbird taxa were recorded, and Pied-billed Grebes, Cinnamon Teal, Hooded Mergansers, and perhaps Spotted Sandpipers nested or reared young here.

At four other small ponds in the Siletz/Logsden area, Llewellyn did 17 observations in 1986-1991 and recorded seven species.

At six fields in the Siletz/Logsden area, Llewellyn made almost all of the 24 observations during 1985-1991. Seven waterbird species were noted.

At each site, the records for each observation are given, as well as each taxon's monthly presence.

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INTRODUCTION AND AUTHORS' DIVISION OF LABOR

This article is separated into five chapters, based on the location of observations. This is an amalgamation of observations independently made by several observers. There was no initial plan for observations to be made and compiled into this article; indeed, drafts of the results have undergone extensive revision and reorganization during the past 10 years. The present format only came into being in July 1993.

Bob Llewellyn made all or nearly all observations for Chaps. 1, 4, and 5; and many of the observations for Chap. 3. He also commented on the March 1983, March 1985, October 1989, February 1990, and December 1992 drafts for Chap. 1; February 1990 draft of Chap. 3; February and September 1990 drafts of Chaps. 4 and 5; and the July 1993 draft of this whole article.

Floyd Schrock did many of the observations for Chaps. 2 and 3. He also had a chance to comment on the February 1990 and July 1993 drafts of those Chapters. However, Bayer extensively revised these drafts for the present article.

Darrel Faxon made many of the observations for Chap. 2.

Bayer compiled everyone's fieldnotes into the present format, took photographs, and prepared

various drafts of this article for some of the authors' comments and for publication.

This article only includes waterbirds: loons, grebes, tubenoses, pelicans, cormorants, herons, egrets, waterfowl, coots, raptors (including eagles), cranes, coots, shorebirds, gulls, terns, alcids, kingfishers, and dippers. This Chapter does not include swallows, blackbirds, or other marsh or semi-aquatic birds.

Chap. 1. WATERBIRDS AT WEST BEAVER POND NEAR BOB LLEWELLYN'S LOGSDEN HOME

1-A. INTRODUCTION

Bob Llewellyn, his wife Martha Doldt, and their daughter Chelsea live in the Logsden area (Fig. 1.1). Bob began recording birds at the West Beaver Pond near their home in 1982.

1-B. STUDY AREA

Location: Township 9S, Range 9W,
SE 1/4 of Section 29
Area Studied: about 0.9 ac (0.4 ha)
Habitat(s) Studied: Beaver Pond
Elevation: 240-280 ft (73-85 m)
Distance to Coastline: 12.3 mi (20.0 km).

Two adjacent year-around beaver ponds are located SW of Bob Llewellyn's house (see Fig. 1.1). They are also illustrated in the Euchre Mountain, Oregon 7.5' Quadrangle, 1984 Provisional Edition and labelled as "Per" (Permanent). Llewellyn made all his observations in the western, horseshoe-shaped Pond (henceforth termed West Beaver Pond or West Pond) shown in the Quadrangle map. The Ponds are spring fed, and the single outlet for both of them only flows in times of high water.

The West Beaver Pond is no more than about 5 ft (1.5 m) deep. One of its arms is surrounded by blackberries, and it also has cattails, emergent reeds, pond lilies, and other freshwater plants (Fig. 1.2). East of this Pond is brush for about 150 ft (46 m), then an open pasture. North of the Pond is a narrow hedgerow and then a field. Brush extends south of the Pond for more than 150 ft (46 m), and except for a dirt road, also westward, along with red alders, wild apple trees, and blackberries.

The East Pond is surrounded by thick blackberries and a brush covered berm, so it is hidden from view and not disturbed by people. It is shallower than the West Pond and is more of a marsh than a pond. When disturbed from the West Pond, ducks and their young often moved to the East Pond.

The West Pond was probably relatively undisturbed, except by hikers and their dogs, although a waterfowl hunter was also rarely seen here.

1-C. METHODS

1-C-1. OBSERVATION METHODS

Except for a few records of a Horned Grebe in the summer of 1983 by Floyd Schrock (see footnote for June-August 1983 records in Table 1.5), all observations were by Bob Llewellyn. Llewellyn usually spent about 2-10 minutes each visit at different times of the day observing birds, usually with binoculars; but he did not record this information. During some observation periods, Llewellyn did not count all birds, but just noted if they were present.

Llewellyn tried to sneak up quietly on the West Beaver Pond while walking south on a dirt road about 25 ft (8 m) from the western edge of the Pond to get to the SW corner where he made his observations; photographs in Fig. 1.2 were taken from the spot where he observed birds. He probably saw most waterbirds before they left, but some may still have been missed.

Only waterbirds are listed in these censuses, even though swallows were often present in spring and summer, and blackbirds may sometimes have been present; these marsh birds were arbitrarily excluded because it was not clear if they were using the open water rather than the adjacent upland or marsh vegetation and because they were difficult to census. One or more beavers were often present, and muskrats and nutria were occasionally observed, but none of them are included in the records in Table 1.5.

1-C-2. FREEZING WEATHER

Temperatures are not available for the Logsden

area, so those for Newport through 1992 are arbitrarily used to test if freezing is correlated with the presence or absence of birds. Because Newport is along the coast where temperatures are milder, if it was freezing at Newport, it was undoubtedly also doing so at Logsden, but if it was freezing in Logsden it may not have been in Newport. Newport temperatures are those given by the National Climatic Data Center (NCDC)(see Literature Cited). As of July 1993, the 1993 Newport NCDC data are not yet available.

It may be coincidental that birds are present or absent during freezing, so their presence or absence can only be considered to be correlated with freezing, not necessarily caused by it.

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1-D. TOLERABLE OBSERVATION EFFORT (TOE)

The term Tolerable Observation Effort (TOE) is used to emphasize that if certain criteria are attained, effort is judged Tolerable (i.e., moderately good or passable), so that observations can be considered as presence/absence data, not just as presence data (Bayer 1993:14-15). However, TOE does not indicate an effort in which all taxa present were recorded; TOE suggests only that effort was probably sufficient to find most, if not all, conspicuous, common taxa and, perhaps, some of the more inconspicuous or uncommon taxa (Bayer 1993:10-16).

A TOE month is:

1) a month with three or more systematic observations by an experienced observer;
or 2) a month when the number of recorded taxa was 60% or more of the maximum for three or more years for that month, and the observer tried to record all bird taxa present;
or 3) a month when the observer's effort appears systematic enough to record all taxa present, although the observer has less than three years of observations.

Based on criterion #1 and Table 1.1, there were 36 TOE months (Table 1.2). In other months, there were too few observations or observations were too incidental to be considered as TOE (Table 1.1). Most TOE months were in December-April (Table 1.2)

If criterion #2 was used, there would have been two fewer TOE months (34), and TOE months might not have been the same as with criterion #1 (see "yrs of 60%" in Table 1.2). Criterion #1 was arbitrarily chosen because observations were systematic.

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1-E. SHORTCOMINGS OF OBSERVATIONS

1-E-1. INTRODUCTION

In any ornithological undertaking, there are shortcomings, and this is no exception. Many possible shortcomings are examined in Bayer (1993:28-31); here, only the most relevant ones are examined.

1-E-2. SHORTCOMING: NO RECORDS OF TIME OF DAY OR DURATION OF OBSERVATIONS

Llewellyn did not record the time of day when he made observations. This could make a difference in whether or not some species may have been observed. For instance, Llewellyn noted that Wood Ducks sometimes flew towards the West Beaver Pond at dusk to roost (section 1-G-11), so they could have been missed by mid-morning or afternoon censuses.

It would also have been helpful to record the duration of observations, so that it is clear that observations were consistently of the same length and that a shortage of birds during some observations was not a result of a brief observation.

1-E-3. SHORTCOMING: LOW OBSERVATION EFFORT

Llewellyn made few or no observations during some months, and the number of observations/month was often low in July-November (Table 1.1). Thus, the seasonality of some bird species is not as clear as it would have been if there had consistently been three or more observations/month.

1-E-4. SHORTCOMING: NOT ALWAYS RECORDING AN ABSENCE OF BIRDS

It is as important to know when birds are absent as when they are present, so that bird usuage of a site is clearer. However, it is easy to mistakenly feel that there is no point in recording when birds were absent.

Llewellyn sometimes noted that birds were totally absent (see Table 1.5), but there may have been other occasions when birds were absent that he didn't record.

1-E-5. SHORTCOMING: OVERLOOKING SPECIES

Although Llewellyn tried not to disturb any birds when he arrived at the West Beaver Pond, some waterbirds may have flown away, hid amongst the vegetation, or swam to the East Pond, so that they were missed.

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1-F. GENERAL RESULTS AND DISCUSSION

1-F-1. NUMBER OF TAXA

Few taxa were usually recorded each visit, and sometimes none were present (Table 1.1). The only month when there was more than four taxa/observation was December 1988, and the only

months with an average of three or more taxa/observation were February 1984, 1989, and 1991 (Table 1.1).

The range in the maximum number of taxa seen each month was 3-8 (Table 1.2). Maxima were greatest in winter (Table 1.2), but that may have been because that was also when the number of observations was greatest (Table 1.1), not because of a seasonal trend in bird diversity.

Llewellyn saw a total of 19 taxa (which includes "unknown ducks," "domestic duck," and "unknown teal"), with a range of 5-12 taxa/year (Table 1.2). The greatest number of taxa was recorded in 1989, when he also had the most records and almost the most observations (Tables 1.1 and 1.2).

Most taxa (53%) were recorded in five or more of the 10 years with many observations (Table 1.3). The five most frequent species were Wood Duck, Mallard, Ring-necked Duck, Bufflehead, and Hooded Merganser (section 1-G).

1-F-2. NUMBER OF BIRDS

Rarely were more than 10 birds recorded per observation, and the average number of waterbirds/census was often five or less (Table 1.4). The only months when 15 or more birds were counted were January 1984 and February 1989 (Table 1.4).

1-F-3. NESTING

Nesting species or those with broods at the West Beaver Pond included Wood Ducks, Mallards, Ring-necked Ducks, and Hooded Mergansers (section 1-G). Some of these species may not have actually had a nest at the Pond but may have nested nearby and brought their broods to the Pond to rear them. None of these species had broods at this Pond each summer, so their nesting could be easily overlooked if there was only one or two years of observations.

1-F-4. FREEZING

Because the West Beaver Pond is relatively shallow and still, it could be expected that during freezing temperatures waterbirds may leave here because of freezing (section 1-C-2). However, determining that birds left is much more difficult than determining an increase in numbers. Taxa whose presence here always correlated with freezing at Newport included Northern Pintail and Common Snipe; in addition, the presence of unknown teal/Green-winged Teal and American Wigeon was usually correlated with freezing (section 1-G).

The two coldest spells with observations occurred in February 1989 and December 1990, and during one or both of these periods taxa that were present here included Great Blue Heron, Mallard, Ring-necked Duck, Bufflehead, and Hooded Merganser (Table 1.5). Thus, the West Beaver Pond wasn't abandoned then by these species, and they may have even been attracted here then.

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1-G. TAXA ACCOUNTS

1-G-1. INTRODUCTION

These records are compiled from Table 1.5.

1-G-2. YEARS WITHOUT RECORDS

If a taxon was only recorded in four years or less, only those years with records are listed. Each year is listed, whether a taxon was present or not, for more frequent taxa.

1-G-3. MONTHLY MAXIMA CODES

(number)=maximum number of birds counted during systematic censuses or incidental observations; a zero is put in front of 1-9 (e.g., 06) to enhance readability of when a taxon was present or it would otherwise be obscured by all the "?"'s.

..=taxon not recorded although there was Tolerable Observation Effort (TOE) (section 1-D), so the taxon should have been observed, if present. A ".." is used instead of a zero to enhance readability of when a taxon appears to have been absent.

XX=taxon present but not counted during month.

?=taxon not recorded but observation was less than needed for TOE.

1-G-4. AVERAGE MONTHLY FREQUENCY

FREQ=average monthly frequency of occurrence of a taxon (see Bayer 1993:20). It is expressed by a number in deciles, ".", "+", "X", or "?", depending on the presence or absence of a taxon and the adequacy of observation effort.

1-10=average monthly frequency in deciles. If there were at least three years of TOE for a month (see Table 1.2), this was calculated by dividing the number of TOE years in which a taxon was recorded by the total number of TOE years for that month. The result was then multiplied by 10 and rounded off to the nearest whole number.

.=decile of zero, and the taxon was also not recorded in non-TOE months. A "." is used instead of a "0" to enhance readability of when a taxon appears to have been absent.

+=if a decile was calculable (i.e., there were three or more years with TOE for that month), it was zero, but the taxon was recorded during one non-TOE month; if a decile was not calculable, the taxon was only recorded during one month (whether TOE or not).
X=if a decile was calculable (i.e., there were three or more years with TOE for that month), it was zero, but the taxon was recorded during two or more non-TOE months; if a decile was not calculable, the taxon was recorded during two or more months (whether TOE or not).
?=the taxon was not recorded but there were no observations or observation effort may have been inadequate to detect it.

1-G-5. PIED-BILLED GREBE (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1985	..	..	..	?	?	?	?	XX	?	?	?	?
FREQ	.	.	.	.	?	?	?	+	?	?	?	.

It doesn't appear to nest here, although it nests elsewhere in Lincoln County marshes.

1-G-6. HORNED GREBE (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1983	?	?	?	..	?	01	01	01	?	?	?	..
1984	?	?	..	..	?	01	?	?	?	?	?	?
FREQ	.	.	.	.	?	X	+	+	?	?	?	.

The summering 1983 bird was in breeding plumage and was noted by Llewellyn and/or Floyd Schrock on nine different days Table 1.5).

The June 1984 bird in breeding plumage was seen on four different days.

1-G-7. GREAT BLUE HERON (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	?	?	..	?	?	?	?	?	?	?	..
1983	?	?	?	..	?	..	?	?	?	?	?	..
1984	01	01	..	..	?	?	?	?	?	?	?	?
1985	01	01	..	?	?	?	03	XX	XX	?	?	?
1986	?	?	?	?	?	XX	01	?	?	?	?	?
1987	?	?	?	..	..	?	?	?	?	?	?	?
1988	?	?	?	?	?	?	..	01	01	?	?	01
1989	?	01	?	01	..	?	?	01	01	01	?	..
1990	?	01	?	..	?	?	?	01	01	01	?	02
1991	01	01	..	?	?	..	?	01	02	01	?	01
1992	01	01	..	?	?	?	?	?	?	01	?	01
1993	?	..	..	..	?	?	?	?	?	?	?	?
FREQ	10	8	.	1	?	+	X	X	X	X	?	6

Great Blue Herons may have frequented West Beaver Pond more often than indicated because they may have left during Llewellyn's approach.

One was sometimes seen in December-February, which indicates that one may occasionally overwinter. Although sometimes present then during freezing, they were also often present when it wasn't (Table 1.5).

Their almost total absence in March-May suggests that this Pond is not used much during the herons' nesting season (Bayer and McMahon 1981).

1-G-8. GREEN-BACKED HERON (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	?	?	..	?	?	?	?	?	?	?	..
1983	?	?	?	..	?	..	?	?	01	?	?	..
1984	?	?	..	..	?	?	?	?	?	?	?	?
1985	..	..	..	?	XX	?	?	XX	?	?	?	?
1986	?	?	?	?	?	01	03	?	?	?	?	?
1987	01	?	?	XX	..	?	?	?	?	?	?	?
1988	?	?	?	?	?	?	02	02	?	?	?	..
1989	?	..	?	02	01	?	01	?	02	?	?	..
1990	?	..	?	..	02	?	01	01	01	?	?	..
1991	..	?	..	?	?	01	?	?	01	?	?	..
1992	..	..	..	?	?	?	?	?	?	?	?	..
1993	?	..	..	..	02	?	?	?	?	?	?	?
FREQ	+	.	.	3	X	X	X	X	X	?	?	.

It was often found in April-August, but it was most regularly noted in July-September, which is probably after young have fledged. The January 1987 record was not correlated with freezing (Table 1.5) and is the only winter record, although there were many censuses in December-February.

This taxon may have been more common than these records indicate because they may have flown away as Llewellyn approached.

1-G-9. UNKNOWN DUCKS (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1985	..	..	..	?	?	?	?	XX	?	?	?	?
1986	?	?	?	?	?	?	?	?	?	?	?	03
1988	?	?	?	?	?	?	XX	..	?	?	?	..
FREQ	.	.	.	.	?	?	+	+	?	?	?	+

1-G-10. DOMESTIC DUCK (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1988	?	?	02	01	?	?	..	..	?	?	?	..
FREQ	.	.	+	+	?	?	?	?	?	?	?	.

1-G-11. WOOD DUCK (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	?	?	02	?	?	?	?	?	?	?	..
1983	?	?	?	..	?	..	?	?	?	?	?	..
1984	?	?	..	02	?	?	?	?	?	?	?	?
1985	..	..	..	?	?	?	?	?	?	?	?	?
1986	?	?	?	?	?	?	?	?	?	?	?	?
1987	?	?	?	XX	..	?	?	?	?	?	?	?
1988	?	?	?	?	?	01	XX	03	02	?	?	..
1989	?	..	?	02	04	?	?	?	03	04	?	..
1990	?	..	?	..	?	?	?	01	?	?	?	..
1991	..	?	..	?	?	06	?	?	..	?	?	..
1992	..	..	02	?	?	?	?	?	?	?	?	..
1993	?	..	02	04	?	01	?	?	?	?	?	?
FREQ	.	.	4	7	+	X	+	X	X	+	?	.

Wood Ducks were absent in winter.

A female Wood Duck with ducklings was only seen in July and August 1988 and June 1991, so

they do not appear to commonly nest at this site.

In 1984 on April 30 and May 4, 5, and 6; Llewellyn noted 1-2 pairs of Wood Ducks flying from the Siletz Gorge area north of his home towards West Beaver Pond at about 7:45-7:50 PM (Pacific Standard Time). Thus, Wood Ducks may regularly roost nightly at this Pond, although they were often not present during the day during Llewellyn's observations.

1-G-12. UNKNOWN TEAL (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1988	?	?	?	?	?	?	..	..	?	?	?	07
1989	?	..	?	..	..	?	?	?	04	?	?	..
FREQ	.	.	.	.	?	?	?	?	+	?	?	1

These were probably Green-winged Teal. Their December 1988 presence was correlated with freezing (Table 1.5).

1-G-13. GREEN-WINGED TEAL (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	?	?	04	?	?	?	?	?	?	?	..
1983	?	?	?	..	?	..	?	?	?	?	?	..
1984	?	?	..	03	?	?	?	?	?	?	?	?
1985	..	..	..	?	?	?	?	?	?	?	?	?
1986	?	?	?	?	?	?	?	?	?	?	?	?
1987	?	?	?	..	..	?	?	?	?	?	?	?
1988	?	?	?	?	?	?	..	..	?	?	?	?
1989	?	01	?	04	..	?	?	?	?	?	?	..
1990	?	..	?	..	?	?	?	..	?	?	?	02
1991	..	?	..	?	?	..	?	?	..	?	?	..
1992	..	02	..	?	?	?	?	?	?	?	?	..
1993	?	02	..	02	?	?	?	?	?	?	?	?
FREQ	.	6	.	6	?	?	?	?	?	?	?	1

It appears to be a frequent spring migrant, but birds in December 1988 and September 1989 that were identified as unknown teal may have been Green-winged Teal.

Teal occurrence in November-February is sometimes correlated with freezing (e.g., February 1989 and December 1990), but not always (e.g., February 1992).

1-G-14. MALLARD (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	03	?	02	?	?	?	?	?	?	02	..
1983	?	?	?	03	?	01	?	?	?	?	?	03
1984	08	02	02	02	?	?	?	?	?	05	?	?
1985	..	..	02	?	?	?	?	?	?	?	?	?
1986	?	?	?	?	?	?	01	?	?	?	?	02
1987	?	?	01	01	XX	?	?	?	?	?	?	?
1988	02	?	?	?	?	?	..	04	02	02	?	03
1989	?	15	?	02	08	?	?	?	02	?	03	06
1990	?	..	02	02	07	?	?	05	?	05	?	..
1991	..	XX	02	?	?	07	?	02	03	?	?	02
1992	..	03	02	?	?	?	?	?	?	XX	?	..
1993	?	02	02	..	?	?	?	?	?	?	?	?
FREQ	X	6	10	9	X	X	+	X	X	X	X	6

Ducklings were observed in May 1987, May 1989, May 1990, and June 1991. Since there were May or June observations in other years, Mallards apparently nest here some years but not others.

Although sometimes present in November-February during freezing, they were also often present when it wasn't (Table 1.5).

1-G-15. NORTHERN PINTAIL (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1990	?	..	?	..	?	?	?	..	?	?	?	01
FREQ	.	.	.	.	?	?	?	?	?	?	?	1

The only sighting was of a male that occurred during freezing (Table 1.5).

1-G-16. AMERICAN WIGEON (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1983	?	?	?	..	?	..	?	?	?	?	?	02
1988	?	?	?	?	?	?	..	..	?	?	?	08
1989	?	01	?	..	..	?	?	?	..	?	?	..
1990	?	..	?	..	?	?	?	..	?	?	02	..
1993	?	..	02	..	?	?	?	?	?	?	?	?
FREQ	.	2	2	.	?	?	?	?	?	?	+	3

They were uncommon during some winters. The very high number of eight wigeon recorded in December 1988 was not correlated with freezing temperatures, but their presence in December 1983 and February 1989 was (Table 1.5).

1-G-17. RING-NECKED DUCK (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	?	?	02	?	?	?	?	?	?	?	..
1983	?	?	04	..	?	06	XX	?	?	?	?	05
1984	08	04	04	..	?	?	?	?	?	02	?	?
1985	02	03	03	02	?	?	?	?	?	?	?	?
1986	?	?	?	?	?	?	?	?	?	?	?	?
1987	?	?	?	XX	..	?	?	?	?	?	?	?
1988	?	?	02	?	?	?	..	..	?	?	?	04
1989	?	07	?	02	..	?	?	?	..	?	?	..
1990	?	..	?	02	?	?	?	..	?	?	?	03
1991	03	02	02	?	?	..	?	?	..	?	?	..
1992	01	01	01	?	?	?	?	?	?	?	?	03
1993	?	02	02	..	?	?	?	?	?	?	?	?
FREQ	10	8	10	6	?	+	+	?	?	+	?	6

A female Ring-necked with ducklings was noted in 1983 on June 6 and July 25; since the ducklings seen on July 25 were very small, two broods may have been raised here. A female Ring-necked or, more probably, a Wood Duck with ducklings was noted in July 1988. Thus, Ring-necked Ducks apparently rarely nest here.

Although sometimes present in November-February during freezing, they were also often present when it wasn't (Table 1.5).

1-G-18. BUFFLEHEAD (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	?	?	..	?	?	?	?	?	?	01	03
1983	01	?	?	03	?	..	?	?	?	?	?	02
1984	?	04	03	02	?	?	?	?	?	?	?	?
1985	..	..	..	01	?	?	?	?	?	?	?	?
1986	?	?	?	?	?	?	?	?	?	?	?	?
1987	?	?	?	XX	..	?	?	?	?	?	?	?
1988	?	?	01	02	01	?	..	..	?	?	?	03
1989	?	03	03	02	..	?	?	?	..	?	?	..
1990	?	05	?	..	?	?	?	..	?	?	?	03
1991	04	XX	03	?	?	..	?	?	..	?	?	01
1992	..	03	03	?	?	?	?	?	?	?	?	01
1993	03	06	06	..	?	?	?	?	?	?	?	?
FREQ	3	8	8	6	+	?	?	?	?	?	+	9

Although sometimes present in November-February during freezing, they were also often present when it wasn't (Table 1.5).

1-G-19. HOODED MERGANSER (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	?	?	..	?	?	?	?	?	?	?	..
1983	02	?	02	..	07	03	?	?	?	?	?	..
1984	?	?	01	..	?	01	01	?	?	01	?	?
1985	..	02	03	?	?	01	04	XX	XX	?	?	?
1986	?	?	?	?	?	?	01	?	?	?	?	?
1987	?	?	03	..	XX	XX	?	?	?	?	?	?
1988	?	?	?	?	?	01	..	02	?	?	?	03
1989	?	02	?	..	02	?	01	?	..	?	?	..
1990	?	..	?	01	?	?	?	..	?	?	02	..
1991	..	?	02	?	01	..	?	01	01	?	?	..
1992	..	02	..	?	?	?	?	?	?	?	?	..
1993	01	..	03	..	?	?	?	?	?	?	?	?
FREQ	X	6	8	1	X	X	X	X	X	+	+	1

Hooded Merganser ducklings were noted in May and/or June of 1983 and 1987 but not in other years with observations, so their ducklings do not use this Pond each year (Table 1.5).

They are uncommon in November-February and are sometimes present then during freezing (e.g., February 1989), but they were also often present when it wasn't (Table 1.5).

1-G-20. COMMON MERGANSER (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1990	?	..	?	01	?	?	?	..	?	?	?	..
FREQ	.	.	.	1	?	?	?	?	?	?	?	.

1-G-21. AMERICAN COOT (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	?	?	01	?	?	?	?	?	?	?	..
1991	..	?	..	?	?	..	?	?	..	?	?	01
1992	01	..	..	?	?	?	?	?	?	?	?	..
FREQ	3	.	.	1	?	?	?	?	?	?	?	1

They did not nest here.

Their presence in December 1991-January 1992 was not correlated with freezing (Table 1.5).

1-G-22. SPOTTED SANDPIPER

Although often present at freshwater streams, this species was never recorded here and is conspicuous by its absence.

1-G-23. COMMON SNIPE (MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	XX	?	02	?	?	?	?	?	?	XX	..
1983	?	?	?	01	?	..	?	?	?	?	?	..
1984	?	?	..	01	?	?	?	?	?	01	?	?
1985	..	..	..	01	?	?	?	?	?	?	?	?
1986	?	?	?	?	?	?	?	?	?	?	?	?
1987	?	?	XX	..	..	?	?	?	?	?	?	?
1988	?	?	?	?	?	?	..	..	?	?	?	..
1989	?	01	?	..	..	?	?	?	..	?	?	..
1990	?	..	?	..	?	?	?	..	?	?	?	..
1991	..	?	..	?	?	..	?	?	..	?	?	..
1992	..	..	01	?	?	?	?	?	?	XX	?	..
1993	?	..	..	..	?	?	?	?	?	?	?	?
FREQ	.	2	2	4	?	?	?	?	?	X	+	.

Snipe were mainly a spring migrant, although they were also sometimes a fall migrant. There was no indication that they nested here.

There are only two winter records during December-February, both during freezing (Table 1.5).

They appear to have become less frequent since about 1985.

1-G-24. RED-NECKED PHALAROPE(MAX birds/month)

	J	F	M	A	M	J	J	A	S	O	N	D
1982	?	?	?	..	10	?	?	?	?	?	?	..
1989	?	..	?	..	03	?	?	?	..	?	?	..
FREQ	.	.	.	.	X	?	?	?	?	?	?	.

It only occasionally occurred here in May as a nonnesting vagrant.

1-G-25. BELTED KINGFISHER

Although often present at freshwater streams, this species was never recorded here and is conspicuous by its absence.

1-G-26. AMERICAN DIPPER

Although often present at freshwater streams, this species was never recorded here and is conspicuous by its absence.

1-G-27. PURPLE MARTIN

Llewellyn did not ever see this species here.

****

1-H. FIGURES AND TABLES

Fig. 1.1. West Beaver Pond near Bob Llewellyn's Logsden home and other ponds or fields in the Siletz/Logsden area.

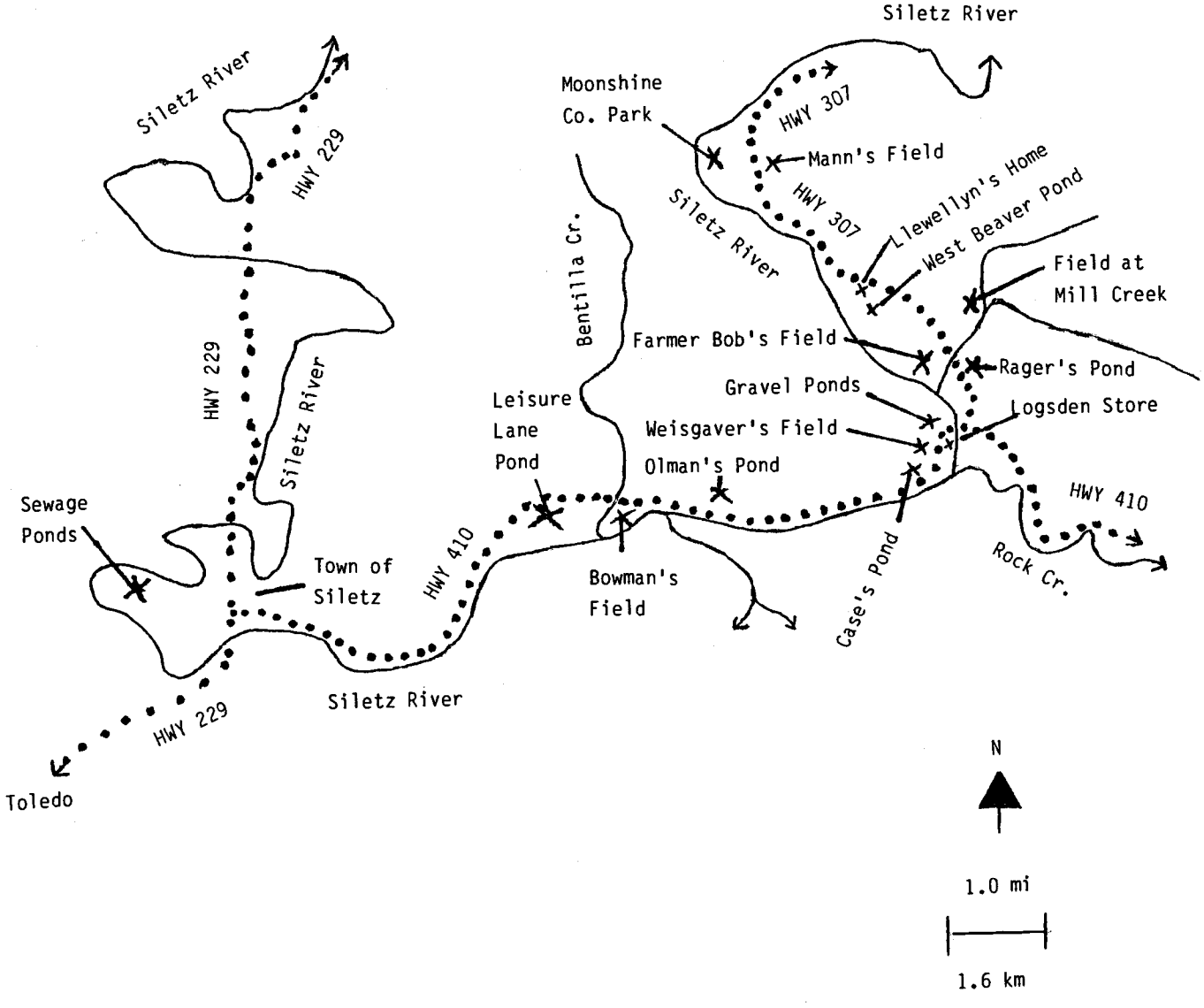

Fig. 1.2. View northward and eastward of most of the West Beaver Pond that Llewellyn studied from near its SW corner. Some of the viewable portions of this Pond are beyond the left and right edges of this panorama. This view is from the same spot as where Llewellyn made his observations. The adjacent, East Pond that Llewellyn did not observe is beyond the right side of this panorama.

In this panorama, note the emergent reeds, pond lilies, and the brush or trees surrounding the edges of this Pond. Although this panorama makes it appear as if the Pond is surrounded by forest, it is not (section 1-B).

Photographed on 19 August 1990 with a "normal," 1x lens.

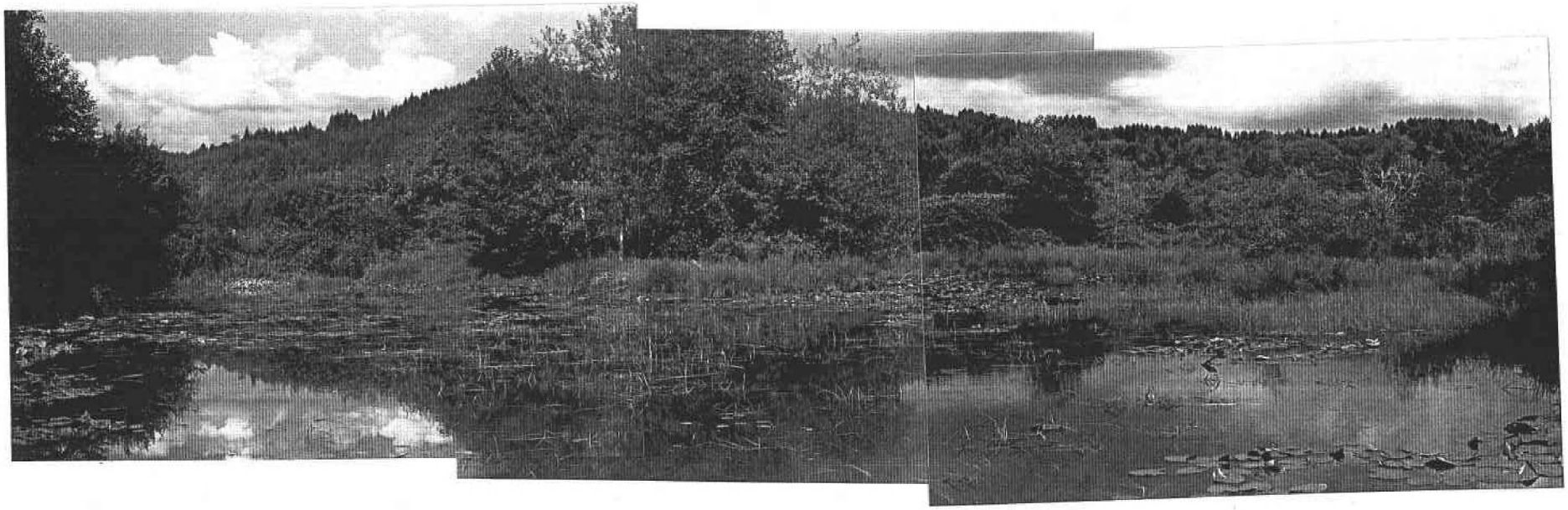

Table 1.1. Number of Observations and number of waterbird Taxa/Observation at West Beaver Pond. There was one Observation per day. "Unknown ducks," "domestic duck," and "unknown teal" are each counted as a taxon. These data were calculated from data in Table 1.5.

Codes:
N=number of Observations/Month
SD=Standard Deviation
-=not applicable
Yrs=number of years with at least one observation
MAX=maximum N or maximum number of Taxa; maximum Mean of Means when N is two or more.

	Waterbird Taxa/Observation															
	January				February				March				April				May			
Yr	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range
82	0	-	-	-	1	2	-	2	0	-	-	-	3	2.3	0.6	2-3	2	0.5	0.7	0-1
83	1	2	-	2	0	-	-	-	2	1.0	1.4	0-2	4	1.5	0.6	1-2	2	0.5	0.7	0-1
84	2	2.5	0.7	2-3	2	3.5	0.7	3-4	4	1.5	1.0	1-3	5	1.8	0.8	1-3	0	-	-	-
85	5	1.0	1.0	0-2	3	1.0	1.0	0-2	4	0.8	1.0	0-2	2	1.5	2.1	0-3	1	1	-	1
86	1	0	-	0	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
87	2	0.5	0.7	0-1	0	-	-	-	2	1.5	0.7	1-2	4	2.0	0.8	1-3	3	1.7	0.6	1-2
88	1	1	-	1	0	-	-	-	2	2.5	0.7	2-3	1	2	-	2	1	1	-	1
89	0	-	-	-	5	3.2	0.8	2-4	2	1.0	0	1	7	2.0	1.2	1-4	3	2.7	0.6	2-3
90	0	-	-	-	4	1.3	0.5	1-2	2	0.5	0.7	0-1	3	2.3	0.6	2-3	2	1.5	0.7	1-2
91	4	1.8	0.5	1-2	2	3.5	0.7	3-4	6	1.5	0.8	0-2	0	-	-	-	1	1	-	1
92	4	1.8	1.0	1-3	5	1.6	1.1	0-3	3	2.3	0.6	2-3	1	0	-	0	0	-	-	-
93	2	1.0	0	1	4	2.0	0	2	5	2.4	0.9	1-3	3	1.0	0	1	1	1	-	1
Yrs	9	-	-	-	8	-	-	-	10	-	-	-	10	-	-	-	9	-	-	-
SUM	22	-	-	-	26	-	-	-	32	-	-	-	33	-	-	-	16	-	-	-
MAX	5	2.5	-	3	5	3.5	-	4	6	2.5	-	3	7	2.3	-	4	3	2.7	-	3

	Waterbird Taxa/Observation																			
	June				July				August				September				October			
Yr	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range
82	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
83	6	2.7	0.8	2-4	0	-	-	-	0	-	-	-	1	1	-	1	0	-	-	-
84	1	2	-	2	1	1	-	1	0	-	-	-	0	-	-	-	2	2.5	0.7	2-3
85	2	1.0	0	1	2	1.0	0	1	1	5	-	5	1	2	-	2	0	-	-	-
86	2	1.0	0	1	1	4	-	4	0	-	-	-	0	-	-	-	0	-	-	-
87	1	1	-	1	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
88	1	2	-	2	4	1.3	0.5	1-2	3	2.3	1.5	1-4	2	2.5	0.7	2-3	1	1	-	1
89	0	-	-	-	2	1.5	0.7	1-2	1	0	-	0	3	2.7	1.2	2-4	2	1.0	1.4	0-2
90	0	-	-	-	1	1	-	1	3	2.0	1.7	0-3	1	2	-	2	2	1.0	1.4	0-2
91	4	1.3	0.5	1-2	0	-	-	-	1	3	-	3	6	1.2	0.8	0-2	2	0.5	0.7	0-1
92	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	1	3	-	3
93	1	1	-	1	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
Yrs	8	-	-	-	6	-	-	-	5	-	-	-	6	-	-	-	6	-	-	-
SUM	18	-	-	-	11	-	-	-	9	-	-	-	14	-	-	-	10	-	-	-
MAX	6	2.7	-	4	4	1.5	-	4	3	2.3	-	5	6	2.7	-	4	2	2.5	-	3

(Table 1.1 continued on next page)

(Table 1.1 continued)

Yr	Waterbird Taxa/Observation..... November..... N	Mean	SD	Range	December..... N	Mean	SD	Range	Total Observations/ Year
82	1	3	-	3	3	1.0	0	1	10
83	0	-	-	-	3	2.7	0.6	2-3	19
84	0	-	-	-	0	-	-	-	17
85	0	-	-	-	0	-	-	-	21
86	0	-	-	-	1	2	-	2	5
87	0	-	-	-	0	-	-	-	12
88	1	0	-	0	5	2.4	1.7	1-5	22
89	1	1	-	1	3	1.0	0	1	29
90	2	1.0	0	1	5	1.8	1.6	0-3	25
91	1	0	-	0	3	1.7	1.5	0-3	30
92	0	-	-	-	5	0.8	0.8	0-2	19
93	?	?	?	?	?	?	?	?	16
Yrs	5	-	-	-	8	-	-	-	12
SUM	6	-	-	-	28	-	-	-	225
MAX	2	1.0	-	3	5	2.7	-	5	30

Table 1.2. Total waterbird taxa recorded each month and year at West Beaver Pond. These data are calculated from Table 1.1 and section 1-G. "Unknown ducks," "domestic duck," and "unknown teal" are each counted as a taxon.

Codes:

*=TOE month based on section 1-D and Table 1.1
Record=one bird taxon seen or heard during one Observation
Monthly Records (calculated from Table 1.1)= (number of Observations) X (Mean Taxa/Obs.), rounded to the nearest whole number
Total Records=sum of Monthly Records
Total Taxa=total number of taxa recorded each year
Records/Taxon=Total Records for year divided by the total number of taxa noted that year
Records/Obs.=Total Records for year divided by the number of Observations that year in Table 1.1
.=zero ("." is used to enhance readability)
MAX=maximum
#Taxa=total number of taxa seen during all of 1982-93.

	Waterbird Taxa/Month..... Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Records@	Total Taxa	Records per... Taxon	Obs.
1982	.	2	.	6*	1	.	.	.	.	.	3	1*	16	8	2.0	1.6
1983	2	.	2	3*	1	4*	2	1	1	.	.	4*	36	8	4.5	1.9
1984	3	4	4*	5*	.	2	1	.	.	4	.	.	35	9	3.9	2.1
1985	2*	3*	3*	3	1	1	2	5	2	.	.	.	26	9	2.9	1.2
1986	.	.	.	.	.	2	4	.	.	.	.	2	8	5	1.6	1.6
1987	1	.	3	5*	2*	1	.	.	.	.	.	.	18	7	2.6	1.5
1988	1	.	3	2	1	2	3*	5*	3	1	.	7*	41	11	3.7	1.9
1989	.	8*	1	7*	5*	.	2	1	5*	2	1	1*	57	12	4.8	2.0
1990	.	2*	1	4*	2	.	1	4*	2	2	2	5*	38	11	3.5	1.5
1991	3*	4	4*	.	1	3*	.	3	4*	1	.	4*	45	8	5.6	1.5
1992	3*	6*	5*	.	.	.	.	.	.	3	.	3*	29	9	3.2	1.5
1993	2	4*	6*	2*	1	1	?	?	?	?	?	?	27	8	3.4	1.7
MAX	3	8	6	7	5	4	4	5	5	4	3	7	57	12	5.6	2.1
60% of MAX	1.8	4.8	3.6	4.2	3.0	2.4	2.4	3.0	3.0	2.4	1.8	4.2	34.2	7.2	-	-
yrs of 60%	6	2	4	4	1	2	2	4	3	2	2	2	6	10	-	-
yrs of TOE	3	5	5	7	2	2	1	2	2	.	.	7	-	-	-	-
#Taxa	7	8	8	12	6	7	7	8	6	6	5	11	-	19	-	-
MAX/#Taxa	0.4	1.0	0.8	0.6	0.8	0.6	0.6	0.6	0.8	0.7	0.6	0.6	-	0.6	-	-

@ There were a grand total of 376 Records.

Table 1.3. Number and regularity of waterbird taxa at West Beaver Pond for selected years. These data are calculated from section 1-G only for the 10 years that had 60% or more of the maximum number of taxa recorded in one year (MAX=12 taxa) in Table 1.2; these years are 1982-1985 and 1988-1993.

Waterbirds=aquatic taxa (e.g., members of heron family, waterfowl [including geese], rails, shorebirds, gulls, Belted Kingfisher, and American Dipper). "Unknown ducks," "domestic duck," and "unknown teal" are each counted as a taxon.

Other Taxa=number of taxa only found in years with less than 60% of the yearly maximum number of taxa.

No. of Years with 60% or more of MAX	Waterbirds..... No. of Taxa	% of Total
1	4	21.0
2	4	21.0
3	1	5.3
4	0	0.0
5	1	5.3
6	2	10.5
7	2	10.5
8	1	5.3
9	1	5.3
10	3	15.8
Sum	19	100.0
Other Taxa	0	-

Table 1.4. Number of waterbirds/census at West Beaver Pond. There was one Census per day. Data were calculated from Table 1.5 only for observations in which all birds were counted, which did not include all observations.

Codes:
N=number of censuses/month
SD=Standard Deviation
-=not applicable
MAX=maximum N or maximum number of Birds; maximum Mean of Means when N is two or more.

	Waterbirds/Census															
	January				February				March				April				May			
Yr	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range
82	0	-	-	-	0	-	-	-	0	-	-	-	3	5.3	2.1	3-7	2	5.0	7.1	0-10
83	1	3	-	3	0	-	-	-	2	3.0	4.2	0-6	4	3.3	2.1	1-6	2	3.5	4.9	0-7
84	2	11.5	7.8	6-17	2	8.5	0.7	8-9	4	3.5	1.3	2-5	5	3.6	2.1	2-7	0	-	-	-
85	5	1.4	1.5	0-3	3	2.0	2.6	0-5	4	2.0	2.8	0-6	2	2.0	2.8	0-4	0	-	-	-
86	1	0	-	0	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
87	2	0.5	0.7	0-1	0	-	-	-	1	4	-	4	1	3	-	3	1	11	-	11
88	1	2	-	2	0	-	-	-	2	3.5	0.7	3-4	1	3	-	3	1	1	-	1
89	0	-	-	-	5	9.6	9.2	4-26	2	3.0	0	3	7	4.0	3.1	1-10	3	9.7	3.5	6-13
90	0	-	-	-	4	3.3	1.7	1-5	2	1.0	1.4	0-2	3	4.0	1.0	3-5	1	7	-	7
91	4	3.5	2.4	1-6	1	10	-	10	6	2.3	1.8	0-5	0	-	-	-	1	1	-	1
92	4	1.8	1.0	1-3	5	3.2	2.4	0-6	2	5.0	1.4	4-6	1	0	-	0	0	-	-	-
93	2	2.0	1.4	1-3	4	5.5	1.9	4-8	5	7.0	3.7	2-10	3	2.7	1.2	2-4	1	2	-	2
MAX	5	11.5	-	17	5	9.6	-	26	6	7.0	-	10	7	5.3	-	10	3	9.7	-	13

	Waterbirds/Census																			
	June				July				August				September				October			
Yr	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range
82	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
83	6	4.3	2.5	2-9	0	-	-	-	0	-	-	-	1	1	-	1	0	-	-	-
84	1	2	-	2	1	1	-	1	0	-	-	-	0	-	-	-	2	5.0	2.8	3-7
85	2	1.0	0	1	2	3.5	0.7	3-4	0	-	-	-	0	-	-	-	0	-	-	-
86	1	1	-	1	1	6	-	6	0	-	-	-	0	-	-	-	0	-	-	-
87	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
88	1	2	-	2	3	6.7	2.3	4-8	3	5.3	4.5	1-10	2	3.5	2.1	2-5	1	2	-	2
89	0	-	-	-	2	1.0	0	1	1	1	-	1	3	5.0	4.4	2-10	2	2.5	3.5	0-5
90	0	-	-	-	1	1	-	1	3	3.3	3.5	0-7	1	2	-	2	2	3.0	4.2	0-6
91	4	4.5	2.6	1-7	0	-	-	-	1	4	-	4	6	1.7	1.5	0-4	2	0.5	0.7	0-1
92	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
93	1	1	-	1	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
MAX	6	4.5	-	9	3	6.7	-	8	3	5.3	-	10	6	5.0	-	10	2	5.0	-	7

	Waterbirds/Census							
	November				December			
Yr	N	Mean	SD	Range	N	Mean	SD	Range
82	0	-	-	-	3	1.7	1.2	1-3
83	0	-	-	-	3	7.3	2.3	6-10
84	0	-	-	-	0	-	-	-
85	0	-	-	-	0	-	-	-
86	0	-	-	-	1	5	-	5
87	0	-	-	-	0	-	-	-
88	1	0	-	0	5	7.2	5.0	3-14
89	1	3	-	3	3	4.7	1.2	4-6
90	2	2.0	0	2	5	3.8	3.5	0-8
91	1	0	-	0	3	2.0	2.0	0-4
92	0	-	-	-	5	1.2	1.6	0-4
93	?	?	?	?	?	?	?	?
MAX	2	2.0	-	3	5	7.3	-	14

Table 1.5. Waterbirds observed by Bob Llewellyn at West Beaver Pond. Blackbirds, rails, swallows, beaver, muskrats, and nutria have not been included.

Freezing temperature data are discussed in section 1-C-2 (p. 102-103).

Codes:
.=zero (no birds present)
F=female or immature male in female-type plumage
M=male
X=taxon present but not counted
+=at least the indicated number of birds was present.

	1982						1983									
	2/5	4/12	4/17	4/21	5/6	5/12	11/3	12/4	12/5	12/16	1/4	3/21	3/30	4/4	4/7	4/17
Wood Duck	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.
Green-winged Teal	.	.	4	3	.	.	.	.	.	.	.	.	.	.	.	.
Mallard	3*	.	.	2	.	.	2	.	.	.	.	.	.	.	1	3
Ring-necked Duck	.	2	.	.	.	.	.	.	.	.	.	4	.	.	.	.
Bufflehead	.	.	.	.	.	.	1	1	1	3	1@	.	.	3	2	3
Hooded Merganser	.	.	.	.	.	.	.	.	.	.	2@	2	.	.	.	.
Am. Coot	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Common Snipe	X*	.	2	.	.	.	X	.	.	.	.	.	.	.	.	.
Red-necked Phalarope	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.	.
TOTAL TAXA	2	2	2	3	1	0	3	1	1	1	2	2	0	1	2	2
TOTAL BIRDS	3+	3	6	7	10	0	3+	1	1	3	3	6	0	3	3	6

* At Newport, minimum temperatures for Feb. 4-5 were 28-30 F (maxima of 43-45 F)(NCDC; see Literature Cited), so freezing is correlated with the presence of these birds.
@ At Newport, minimum temperatures for Jan. 1-4 were 35-49 F (maxima of 48-52 F)(NCDC), so freezing was not correlated with the presence of these birds.

	1983											
	4/19	5/4	5/24	6/2	6/5	6/6	6/16	6/19	6/20	9/9	12/18	12/21	12/24
Horned Grebe	.	.	.	1@	1@	1@	1@	1@	1@	.	.	.	.
Green-backed Heron	.	.	.	.	.	.	.	.	.	1	.	.	.
Mallard	.	.	.	1	.	1	.	1	.	.	2*	3*	2*
Am. Wigeon	.	.	.	.	.	.	.	.	.	.	.	.	2*
Ring-necked Duck	.	.	.	1	1	6#	.	.	.	.	4*	5*	.
Bufflehead	.	.	.	.	.	.	.	.	.	.	.	2*	2*
Hooded Merganser	.	7**	.	.	.	2$	3$	3$	2$	.	.	.	.
Common Snipe	1	.	.	.	.	.	.	.	.	.	.	.	.
TOTAL TAXA	1	1	0	3	2	4	2	3	2	1	2	3	3
TOTAL BIRDS	1	7	0	3	2	9	4	5	3	1	6	10	6

@ One also found on 6/12, 7/17 & 8/6/1983 by Floyd Schrock. All were in breeding plumage.
** One female and ducklings.
$ Only ducklings.
# Female and 5 ducklings; a female with very small ducklings was also noted on July 25.
* At Newport, minimum temperatures for Dec. 15-18 were 36-41 F (maxima of 43-51 F), for Dec. 19-20 were 25-34 F (maxima of 42-45 F), for Dec. 21 was 17 F (maximum of 26 F), and for Dec. 22-24 were 12-15 F (maxima of 23-25 F)(NCDC); so the presence of birds on Dec. 21 and 24 (but not on Dec. 18) is correlated with freezing.

(Table 1.5 continued on next page)

(Table 1.5 continued)

	1984																	
	1/15	1/29	2/7	2/9	3/3	3/17	3/18	3/20	4/5	4/9	4/22	4/27	4/30	6/4	7/8	10/10	10/13	
Horned Grebe	.	.	.	.	.	.	.	.	.	.	.	.	.	1*	.	.	.	
Great Blue Heron	1@	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	
Wood Duck	.	.	.	.	.	.	.	.	.	.	.	2	2	.	.	.	.	
Green-winged Teal	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	
Mallard	8@	3@	.	2	.	2	2	.	.	.	.	2	.	.	.	.	5	
Ring-necked Duck	8@	3@	4	3	4	.	.	.	.	.	.	.	.	.	.	2	1	
Bufflehead	.	.	4	2	.	2	.	3	2	2	2	.	2	.	.	.	.	
Hooded Merganser	.	.	.	.	.	1	.	.	.	.	.	.	.	1	1	.	1	
Common Snipe	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	1	.	
TOTAL TAXA	3	2	3	4	1	3	1	1	1	2	1	2	3	2	1	2	3	
TOTAL BIRDS	17	6	9	8	4	5	2	3	2	3	2	4	7	2	1	3	7	

* One also found on 6/5, 16, & 19/1984. All were in breeding plumage.

@ At Newport (NCDC), minimum temperatures for Jan. 12-15 were 28-34 F with only one day above freezing, and maxima were 43-50 F, so these birds' presence is correlated with freezing; minima for Jan. 24-29 were 35-47 F, so the presence of ducks is not correlated to freezing.

	1985																		
	1/18	1/22	1/26	1/28	1/31	2/7	2/9	2/17	3/7	3/15	3/16	3/31	4/6	4/11	5/3	6/5	6/8	7/10	
Great Blue Heron	.	.	1*	1*	1	.	1	.	.	.	.	.	.	.	.	.	.	3	
Green-backed Heron	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	
Mallard	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	
Ring-necked Duck	.	.	2*	2*	.	.	.	3@	3	.	.	.	.	2	.	.	.	.	
Bufflehead	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	
Hooded Merganser	.	.	.	.	.	.	.	2@	3	.	.	.	.	.	.	1F	1	.	
Common Snipe	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	
TOTAL TAXA	0	0	2	2	1	0	1	2	2	0	0	1	0	3	1	1	1	1	
TOTAL BIRDS	0	0	3	3	1	0	1	5	6	0	0	2	0	4	X	1	1	3	

* At Newport (NCDC), minimum temperatures for Jan. 23-26 were 33-38 F (maxima of 47-51 F), so freezing is not correlated with bird presence on Jan. 26; but for Jan. 27-28 minima were 31-32 F (maxima of 44-45 F), so birds present on Jan. 28 are correlated with freezing.

@ At Newport (NCDC), minimum temperatures for Feb. 16-17 were 30-32 F (maxima of 49-52 F), so these birds' presence is correlated with freezing.

(Table 1.5 continued on next page)

(Table 1.5 continued)

	1985			1986					1987				
	7/20	8/24	9/22	1/14	6/11	6/21	7/5	12/29	1/9	1/10	3/10	3/30	
Pied-billed Grebe	.	X	.	.	.	.	.	.	.	.	.	.	
Great Blue Heron	.	X	X	.	.	X	1	.	.	.	.	.	
Green-backed Heron	.	X	.	.	1	.	3	.	1*	.	.	.	
unknown duck	.	X	.	.	.	.	.	3*	.	.	.	.	
Mallard	.	.	.	.	.	.	1F	2*	.	.	1	.	
Hooded Merganser	4	X	X	.	.	.	1F	.	.	.	3F	.	
Common Snipe	.	.	.	.	.	.	.	.	.	.	.	X	
TOTAL TAXA	1	5	2	0	1	1	4	2	1	0	2	1	
TOTAL BIRDS	4	X	X	0	1	X	6	5	1	0	4	X	

* At Newport, minimum temperatures for Dec. 24-29 were 39 F or more and minima for Jan. 5-9 were 34-42 F (NCDC), so freezing is not correlated with the presence of these birds.

	1987								1988					
	4/9	4/11	4/17	4/24	5/4	5/24	5/27	6/16	1/9	3/20	3/22	4/14	5/7	6/5
Green-backed Heron	.	.	X	.	.	.	.	.	.	.	.	.	.	.
domestic duck	.	.	.	.	.	.	.	.	.	2	.	1	.	.
Wood Duck	X	.	.	.	.	.	.	.	.	.	.	.	.	1M
Mallard	.	.	.	1	X@	X@	4@	.	1M,1F	.	.	.	.	.
Ring-necked Duck	X	X	.	1M,1F	.	.	.	.	.	1F	1M,1F	.	.	.
Bufflehead	X	X	.	.	.	.	.	.	.	1F	1F	2	1F	.
Hooded Merganser	.	.	.	.	.	X#	7#	X	.	.	.	.	.	1F
TOTAL TAXA	3	2	1	2	1	2	2	1	1	3	2	2	1	2
TOTAL BIRDS	X	X	X	3	X	X	11	X	2	4	3	3	1	2

@ Ducklings.
# One female and ducklings.

	1988															
	7/2	7/3	7/10	7/23	8/14	8/19	8/24	9/17	9/18	10/1	11/15	12/17	12/20	12/22	12/24	12/26
Great Blue Heron	.	.	.	.	1	.	.	.	1	.	.	1*	.	.	.	.
Green-backed Heron	.	.	.	2	.	2	1	.	.	.	.	.	.	.	.	.
unknown duck	4	X#	8#	.	.	.	.	.	.	.	.	.	.	.	.	.
Wood Duck	.	?#	?#	6$	3$	3	.	1	1M,1F	.	.	.	.	.	.	.
unknown teal	.	.	.	.	.	.	.	.	.	.	.	7&*	.	.	.	.
Green-winged Teal	.	.	.	.	.	.	.	.	.	.	.	?&	.	.	.	.
Mallard	.	.	.	.	2M,2F	.	.	1	1M,1F	1M,1F	.	1M,1F*	1M,2F*	.	.	.
American Wigeon	.	.	.	.	.	.	.	.	.	.	.	.	.	8*	.	.
Ring-necked Duck	.	?#	?#	.	.	.	.	.	.	.	.	.	.	1M*	4*	.
Bufflehead	.	.	.	.	.	.	.	.	.	.	.	1F*	.	2F*	1F*	3F
Hooded Merganser	.	.	.	.	2F	.	.	.	.	.	.	3F*	.	.	.	.
TOTAL TAXA	1	1	1	2	4	2	1	2	3	1	0	5	1	3	2	1
TOTAL BIRDS	4	X	8	8	10	5	1	2	5	2	0	14	3	11	5	3

$ One female with ducklings.
& Probably Green-winged Teal.
# One female Wood Duck or Ring-necked Duck with ducklings; it is probably a Wood Duck because a Wood Duck was identified here at the end of July.
* At Newport (NCDC), minimum temperatures for Dec. 15-16 were 28-31 F (maxima of 53-58 F), for Dec. 19-20 were 40-41 F (maxima of 45-51 F), and for Dec. 21-24 were 34-42 F (maxima of 44-50 F), so bird presence on Dec. 17 is correlated with freezing, but not on Dec. 20 and 22.

(Table 1.5 continued on next page)

(Table 1.5 continued)

	1989													
	2/1	2/3	2/8	2/9	2/25	3/12	3/17	4/7	4/15	4/16	4/22	4/23	4/25	4/28
Great Blue Heron	.	.	1*	.	1	.	.	.	.	1	.	.	.	1
Green-backed Heron	.	.	.	.	.	.	.	1M,1F	.	.	.	.	.	.
Wood Duck	.	.	.	.	.	.	.	.	.	.	1M,1F	.	.	.
Green-winged Teal	.	.	1M*	.	.	.	.	.	2M,2F	.	.	2M,1F	.	.
Mallard	.	8M7F*	1M,1F*	1M,2F*	.	.	.	.	1M,1F	.	1M	.	1M,1F	.
American Wigeon	.	1*	.	.	.	.	.	.	.	.	.	.	.	.
Ring-necked Duck	1M@	4M3F*	.	.	2	.	.	.	1M,1F	.	1M,1F	1M,1F	.	.
Bufflehead	3F@	2F*	.	2*	3	2F,1M	2F,1M	.	2F	.	.	.	.	2F
Hooded Merganser	.	.	.	1M,1F*	.	.	.	.	.	.	.	.	.	.
Common Snipe	.	1*	1*	.	.	.	.	.	.	.	.	.	.	.
TOTAL TAXA	2	4	4	3	3	1	1	1	4	1	3	2	1	2
TOTAL BIRDS	4	26	5	7	6	3	3	2	10	1	5	5	2	3

@ At Newport, minimum temperatures for Jan. 25-31 were 34 F or more (maxima of 45 F or more)(NCDC), so the presence of these birds was not correlated with freezing.

* At Newport (NCDC), minimum temperatures for Feb. 1-3 were 12-27 F (maxima of 21-39 F), there were 4 inches of snowfall on Feb. 1-2, minima for Feb. 4-8 were 12-27 F (maxima of 27-47 F), and the minimum for Feb. 9 was 35 F (maximum of 52 F). Thus, freezing temperatures and snow are correlated with the presence of birds on Feb. 3 and 8 and perhaps also on Feb. 9.

	1989														
	5/4	5/7	5/21	7/23	7/26	8/25	9/3	9/10	9/29	10/5	10/28	11/11	12/16	12/17	12/25
Great Blue Heron	.	.	.	.	.	1	.	1	1	1	.	.	.	.	.
Green-backed Heron	1	.	1	1	1	.	2	1	.	.	.	.	.	.	.
Wood Duck	2M,2F	1M,1F	.	.	.	.	1F	.	1M,2F	4	.	.	.	.	.
unknown teal	.	.	.	.	.	.	.	.	4&	.	.	.	.	.	.
Mallard	8$	8$	.	.	.	.	.	.	2F	.	.	1M,2F	4*	2M,4F*	4*
Hooded Merganser	.	.	2F	.	1F	.	.	.	.	.	.	.	.	.	.
Red-necked Phalarope	.	.	2F,1M	.	.	.	.	.	.	.	.	.	.	.	.
TOTAL TAXA	3	2	3	1	2	1	2	2	4	2	0	1	1	1	1
TOTAL BIRDS	13	10	6	1	1	1	3	2	10	5	0	3	4	6	4

$ One female with ducklings.

& Probably Green-winged Teal.

* At Newport (NCDC), minimum temperatures during Dec. 15-16 were 32-34 F (maxima of 43-54 F), for Dec. 17 was 33 F (maximum of 46 F), and for Dec. 23-25 were 39-49 F (maxima of 55-58 F), so barely freezing temperatures are correlated with the presence of Mallards on Dec. 16, but not on Dec. 17 and 25.

	1990														
	2/4	2/10	2/11	2/15	3/24	3/31	4/1	4/8	4/13	5/12	5/20	7/25	8/19	8/22	8/24
Great Blue Heron	.	.	1	.	.	.	.	.	.	.	.	.	.	1	1
Green-backed Heron	.	.	.	.	.	.	.	.	.	.	2	1	.	1	1
Wood Duck	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1F
Mallard	.	.	.	.	.	1M,1F	1M,1F	1M,1F	1M,1F	7*	X*	.	.	5	.
Ring-necked Duck	.	.	.	.	.	.	2M	2M	.	.	.	.	.	.	.
Bufflehead	1M,2F	1F	3F	1M,4F	.	.	.	.	.	.	.	.	.	.	.
Hooded Merganser	.	.	.	.	.	.	.	1F	.	.	.	.	.	.	.
Common Merganser	.	.	.	.	.	.	.	.	1F	.	.	.	.	.	.
TOTAL TAXA	1	1	2	1	0	1	2	3	2	1	2	1	0	3	3
TOTAL BIRDS	3	1	4	5	0	2	4	5	3	7	4+	1	0	7	3

* One female and ducklings.

(Table 1.5 continued on next page)

(Table 1.5 continued)

	1990												1991			
	9/30	10/13	10/27	11/3	11/15	12/2	12/19	12/26	12/28	12/29	1/12	1/20	1/22	1/24	2/4	2/21
Great Blue Heron	1	1	.	.	.	.	2@	.	.	.	.	.	1#	1#	1	1
Green-backed Heron	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Green-winged Teal	.	.	.	.	.	.	.	1M,1F*	.	.	.	.	.	.	.	.
Mallard	.	2M,3F	.	.	.	.	.	.	.	.	.	.	.	.	3	X
Northern Pintail	.	.	.	.	.	.	.	1M*	.	.	.	.	.	.	.	.
American Wigeon	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.
Ring-necked Duck	.	.	.	.	.	.	1M,1F@	1M,2F*	.	.	3#	1M,1F#	.	.	1M,1F	.
Bufflehead	.	.	.	.	.	.	3F@	2F*	2F*	1M,1F*	2#	2M,2F#	.	1F#	4	X
Hooded Merganser	.	.	.	2F	.	.	.	.	.	.	.	.	.	.	.	.
TOTAL TAXA	2	2	0	1	1	0	3	4	1	1	2	2	1	2	4	3
TOTAL BIRDS	2	6	0	2	2	0	7	8	2	2	5	6	1	2	10	X

@ At Newport, minimum temperatures for Dec. 14-18 were 33-40 F (maxima of 44-51 F) and on Dec. 19 was 26 F (maximum of 39 F)(NCDC). But it is not clear if it was freezing before or after the Dec. 19 census, so it is unclear if freezing is correlated.

* At Newport, minimum temperatures for Dec. 20-25 were 6-30 F with only one day above 20 F (maxima of 25-41 F with two days of 32 F or less), and minima for Dec. 28-29 was 16-26 F (maxima of 29-46 F)(NCDC), so freezing seems correlated with the presence of birds on Dec. 26, 28, and 29.

At Newport, minimum temperatures for Jan. 8-12 were 38-48 F (maxima of 48-57 F), for Jan. 18-19 were 34-42 F (maxima of 52-54 F), for Jan. 20 was 30 F (maximum of 60 F), for Jan. 21-22 were 29-31 F (maxima of 59-60 F), and for Jan. 23-24 were 35-40 F (maxima of 47-48 F)(NCDC). Thus, freezing is not correlated with the Jan. 12 and Jan. 24 censuses and is correlated with the Jan. 22 count, but it is unclear if freezing is correlated with the Jan. 20 census because it is not known if the census occurred after it began freezing.

	1991																
	3/1	3/2	3/6	3/10	3/24	3/31	5/19	6/2	6/16	6/22	6/24	8/11	9/1	9/2	9/7	9/8	9/9
Great Blue Heron	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	1	2
Green-backed Heron	.	.	.	.	.	.	.	.	1	.	.	.	.	1	1	.	.
Wood Duck	.	.	.	.	.	.	.	.	2M,1F	6*	.	.	.	.	.	.	.
Mallard	.	.	.	.	2	.	.	7*	.	.	1F	2F	.	.	.	3	.
Ring-necked Duck	.	1M	.	1M,1F	1M	.	.	.	.	.	.	.	.	.	.	.	.
Bufflehead	1M	1M	.	1F	.	3	.	.	.	.	.	.	.	.	.	.	.
Hooded Merganser	.	.	.	.	.	1M,1F	1F	.	.	.	.	1F	.	.	.	.	1F
TOTAL TAXA	1	2	0	2	2	2	1	1	2	1	1	3	0	1	1	2	2
TOTAL BIRDS	1	2	0	3	3	5	1	7	4	6	1	4	0	1	1	4	3

* 1 female and ducklings.

(Table 1.5 continued on next page)

(Table 1.5 continued)

	1991							1992									
	9/10	10/9	10/17	11/3	12/21	12/24	12/31	1/1	1/4	1/12	1/16	2/2	2/15	2/17	2/23	2/29	3/1
Great Blue Heron	.	1	.	.	1*	.	.	.	1*	.	.	.	.	1@	.	.	.
Green-backed Heron	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Green-winged Teal	.	.	.	.	.	.	.	.	.	.	.	.	2@	.	.	.	.
Mallard	.	.	.	.	.	1M,1F*	.	.	.	.	.	.	.	.	.	3@	.
Ring-necked Duck	.	.	.	.	.	.	.	.	1M*	1M*	.	.	.	1@	.	1M@	1
Bufflehead	.	.	.	.	1F*	1F*	.	.	.	.	.	.	3@	.	3@	.	1+
Hooded Merganser	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2F@	.
Am. Coot	.	.	.	.	.	1*	.	1*	1*	1*	1*	.	.	.	.	.	.
TOTAL TAXA	1	1	0	0	2	3	0	1	3	2	1	0	2	2	1	3	2
TOTAL BIRDS	1	1	0	0	2	4	0	1	3	2	1	0	5	2	3	6	2+

* At Newport, minimum temperatures for Dec. 18-24 were 35-44 F (maxima of 48-53 F), for Dec. 28-Jan. 5 were 41-46 F (maxima of 47-58 F), and for Jan. 12-16 were 33-45 F (maxima of 45-55 F)(NCDC), so the presence of these birds was not correlated with freezing.

@ At Newport, minimum temperatures for Feb. 1-29 were 33-50 F with only three days less than 40 F (maxima of 51-76 F)(NCDC), so freezing temperatures were not correlated with the presence of these birds.

	1992									1993						
	3/14	3/28	4/3	10/24	12/12	12/15	12/18	12/25	12/26	1/9	1/15	2/12	2/13	2/20	2/22	3/6
Great Blue Heron	.	.	.	1	.	.	.	.	1	.	.	.	.	.	.	.
Wood Duck	.	1M1F	.	.	.	.	.	.	.	.	.	.	.	.	.	1M1F
Green-winged Teal	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.
Mallard	1M1F	.	.	1+	.	.	.	.	.	.	.	.	.	1M1F	1M1F	.
American Wigeon	.	.	.	.	.	.	.	.	.	.	.	.	.	1M1F	1M1F	.
Ring-necked Duck	.	.	.	.	.	.	3	.	.	.	.	.	2M	.	.	1M1F
Bufflehead	2M1F	1M1F	.	.	.	1F	1F	.	.	.	3F	6	4F	.	.	1M5F
Hooded Merganser	.	.	.	.	.	.	.	.	.	1F	.	.	.	.	.	.
Common Snipe	1	.	.	1+	.	.	.	.	.	.	.	.	.	.	.	.
TOTAL TAXA	3	2	0	3	0	1	2	0	1	1	1	2	2	2	2	3
TOTAL BIRDS	6	4	0	3+	0	1	4	0	1	1	3	8	6	4	4	10

	1993								
	3/8	3/13	3/30	3/31	4/10	4/16	4/26	5/15	6/10
Green-backed Heron	.	.	.	.	.	.	.	2	.
Wood Duck	.	.	.	.	2M2F	1M1F	.	.	1F
Green-winged Teal	.	.	.	.	.	.	1M1F	.	.
Mallard	.	.	.	1M1F	.	.	.	.	.
Ring-necked Duck	1M1F	.	1M1F	.	.	.	.	.	.
Bufflehead	1M4F	1F	6	.	.	.	.	.	.
Hooded Merganser	1M1F	1M2F	1M1F	.	.	.	.	.	.
TOTAL TAXA	3	2	3	1	1	1	1	1	1
TOTAL BIRDS	9	4	10	2	4	2	2	2	1

Chap. 2. WATERBIRDS OF THE SEWAGE PONDS AT THE TOWN OF SILETZ

2-A. INTRODUCTION

Almost all waterbird observations were by Floyd Schrock in 1984-1986 and Darrel Faxon in 1987-1989.

Bayer compiled Schrock's and Faxon's field notes into the present format and prepared various drafts of this Chapter for publication. Schrock commented on a draft in February 1990 that only included his observations and also saw the July 1993 draft that has remained mostly unchanged.

2-B. STUDY AREAS AND METHODS

Location: Township 10S, Range 10W, SE 1/4 of Section 5
Area Studied: about 3 ac (1.2 ha)
Habitat(s) Studied: Sewage Pond
Elevation: 100-140 ft (30-43 m)
Distance to Coastline: 5.9 mi (9.6 km).

These two Sewage Ponds are side by side, just west of the town of Siletz. Based on calculations from the 1984 Toledo, Oregon, North 7.5' Quadrangle, each is approximately 460 ft (140 m) long by 164 ft (50 m) wide.

Workers moved around these Ponds while doing their jobs, but these Ponds are fenced and permission is required to gain access to these Ponds. Birds at these Ponds were protected from shooting.

Only waterbirds are included here, not semi-aquatic or marshbirds such as rails, swallows, or Red-winged Blackbirds that may have been present.

All 1984-1986 observations were by Floyd Schrock, who used binoculars or a 25X spotting scope to make his 12 afternoon censuses (see Table 2.4). The timing and duration of his observations were not recorded. Schrock entered the site to make all his observations.

All 1987-1988 observations were by Darrel Faxon, who also entered the site to observe birds. He used binoculars and a spotting scope to determine if species were present or not during his 16 observations (Tables 2.5 and 2.6). Most of his observations were in the afternoon and lasted 30-45 minutes each.

There were no observations here in 1990-1992, but, in July 1993, Faxon commented that he had heard that this site was undergoing major changes with the Ponds being filled in and a different type of septic system installed. If true, waterbirds may no longer use these Ponds, even if they still exist.

Some correlations of bird presence with freezing temperatures at Newport are included (see section 1-C-2).

2-C. TOLERABLE OBSERVATION EFFORT

The term Tolerable Observation Effort (TOE) is used to emphasize that if certain criteria are attained, effort is judged Tolerable (i.e., moderately good or passable), so that observations can be considered as presence/absence data, not just as presence data (Bayer 1993:14-15). However, TOE does not indicate an effort in which all taxa present were recorded; TOE suggests only that effort was probably sufficient to find most, if not all, conspicuous, common taxa and, perhaps, some of the more inconspicuous or uncommon taxa (Bayer 1993:10-16).

A TOE month is:

1) a month with three or more systematic observations by an experienced observer;
or 2) a month when the number of recorded taxa was 60% or more of the maximum for three or more years for that month, and the observer tried to record all bird taxa present;
or 3) a month when the observer's effort appears systematic enough to record all taxa present, although the observer has less than three years of observations.

Based on criterion #1, the only TOE month is November 1984 (Table 2.1). Although criterion #2 could be used to also designate September 1987 and October 1984, 1985, and 1988 as TOE months (Table 2.2), Bayer felt that the number of taxa seen in each of these Octobers should have been 10 or more, if they were to consistently reflect good observation effort. Thus, the choice of having only one TOE month is arbitrary and conservative.

2-D. SHORTCOMINGS OF OBSERVATIONS

These observations are important in elucidating what waterbirds were present, but there are several shortcomings.

First, there usually were not enough censuses each month throughout the year to accurately determine the seasonal use of these Ponds, especially for nesting.

Second, the time of day and duration of observations isn't always known, and these can be important variables in determining how many birds and which bird species may have been noted. Further, without knowledge of these two variables, comparing Schrock's and Faxon's results or their results with future workers is somewhat tenuous because differences may be a result of observation methods, not differences in bird presence or abundance.

Third, it is not clear if there were times when no birds were present, but this wasn't recorded. Noting the absence of birds is as

important as noting their presence.

****

2-E. CURSORY RESULTS AND DISCUSSION

There were a total of only 29 observations during seven years, with a range of 1-8 observations/year (Table 2.1). Most (17) of these observations were during September-December (Table 2.1), so bird presence during these months is the best known.

A total of 32 waterbird species was noted (Tables 2.2 and 2.3). This is a lot of species, given that there were relatively few observations here. The most species were seen during the months of September-November and in the years of 1984, 1987, and 1988, when observation effort was also greatest (Tables 2.1 and 2.2). In the four years when the greatest number of taxa were recorded, 57% of the species were recorded in only one or two years (Table 2.3) with Mallards, Northern Shovelers, American Wigeon, Killdeer, Pectoral Sandpipers, and Long-billed Dowitchers being seen in each of these years (section 2-F).

The great variety of waterbirds may result from the nutrients in the Ponds and because the Ponds were protected from harassment and shooting. Faxon noted that the birds were relatively tame.

Although Faxon did not census birds, Schrock usually found about 40-80 waterbirds in fall or winter, with a peak count of 124 in February 1986 (Table 2.4).

No indication of nesting was recorded, but observations were too infrequent to determine nesting.

Purple Martins were not recorded during any observation.

As noted in section 2-B, renovation may have occurred at these Ponds, so they may no longer attract waterbirds.

****

2-F. TAXA ACCOUNTS

These are combined years of occurrence of taxa at Siletz Sewage Ponds. These data were calculated from Tables 2.4-2.6.

Freezing temperature data are discussed in section 1-C-2 (p. 102-103).

Codes:
.=taxon not recorded in the TOE month of November 1984 or in other Novembers, so the taxon was probably absent
(number)=year in which a taxon was recorded (e.g., 90=1990)
?=taxon not recorded, so the taxon may have been absent or it may have been present but overlooked.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Double-cr. Cormorant	?	?	?	?	?	?	?	?	?	?	84	?
Only two Double-crest's were once recorded, so they were rare here.												
Cattle Egret	?	?	?	?	?	?	?	?	?	?	84	?
Tundra Swan	81	?	?	?	?	?	?	?	?	?	.	?
One Tundra Swan was noted during the 1980-1981 winter and was last recorded in January 1981.												
Gr. White-fr. Goose	?	?	?	?	?	?	?	?	?	?	.	89
Canada Goose	?	?	?	?	?	?	?	?	?	?	84	87
Wood Duck	?	88	?	88	88	?	?	87	87	85,88	.	?
Wood Duck presence in February 1988 was correlated with freezing.												
Green-winged Teal	?	88	?	?	?	?	?	?	84,87	88	84	?
Teal presence in February 1988 (but not in November 1984) was correlated with freezing.												
Mallard	88	86,88	?	88	88	?	87	87	84,87	84,85,88	84	87
Mallard presence in November-February was not always correlated with freezing.												
Northern Pintail	?	88	?	?	?	?	?	?	87	88	.	?
Pintail presence in February 1988 was correlated with freezing.												
Northern Shoveler	?	86,88	?	88	88	?	?	?	84,87	84,85,88	84,85	87
About 20 shovelers were noted several times in 1984. Their presence in November-February was not always correlated with freezing.												
Eurasian Wigeon	88	86	?	?	?	?	?	?	?	?	.	87
American Wigeon	88	86,88	?	88	?	?	87	87	87	84,85	84,85	87
American Wigeon presence in November-February was not always correlated with freezing.												

(section 2-F continued)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Canvasback	?	86	?	?	?	?	?	?	?	?	.	?
Redhead	?	88	?	?	?	?	?	?	?	?	.	?

Redhead presence in February 1988 was correlated with freezing.

Ring-necked Duck	?	86,88	?	88	?	?	?	?	?	?	84	?

Their presence in November-February was not always correlated with freezing.

Greater Scaup	?	?	?	?	88	?	?	?	?	88	.	?
Lesser Scaup	?	86	?	?	?	?	?	?	?	?	84,85	?

Schrock identified 1984-1986 scaup as Lesser Scaup; Faxon identified 1988 scaup as Greaters. Because these species can easily be misidentified, they might better be treated as scaup spp.

Bufflehead	?	86	?	88	88	?	?	?	?	?	84,85	?

As many as 25 Buffleheads were counted in November 1984. Their presence in November-February was not correlated with freezing.

Hooded Merganser	?	?	?	?	?	?	?	87	?	?	.	?
Osprey	?	?	?	?	?	?	?	?	87	?	.	?
American Coot	?	86	?	?	?	?	?	?	?	84	84	?

Coot presence in November 1984 and February 1986 was not correlated with freezing at Newport.

Killdeer	88	86,88	?	88	88	?	87	87	84,87	84,85	85	87

Except for November 1985 when 10 Killdeer were found, only 0-2 Killdeer were counted in 1984-1986; the presence of 10 Killdeer was correlated with freezing at Newport as was their presence in February 1988, but their presence in February 1986, December 1987, and January 1988 was not.

Lesser Yellowlegs	?	?	?	?	?	?	87,89	?	?	?	.	?
Spotted Sandpiper	?	?	?	?	88	?	87	87	87	84	84	?
Western Sandpiper	?	?	?	?	?	?	?	?	84	?	.	?
Least Sandpiper	?	?	?	88	88	?	87	87	84,87	?	.	?
Pectoral Sandpiper	?	?	?	?	?	?	?	?	84,85,87	84,85,88	.	?

As many as 12 Pectorals were counted in October 1985.

Short-b. Dowitcher	?	?	?	?	?	?	?	?	?	85	.	?
Long-b. Dowitcher	?	?	?	?	?	?	87	?	87	84,85,88	.	?
Common Snipe	?	?	?	?	?	?	?	?	?	84	84	?

Snipe presence in November 1984 was not correlated with freezing.

Red-necked Phalarope	?	?	?	?	87	?	?	?	85	?	.	?
Glaucous-winged Gull	?	?	?	?	?	?	?	?	?	85	.	?

****

2-G. TABLES

Table 2.1. Number of Observations and number of waterbird Taxa/Observation at Siletz Sewage Ponds. There was one Observation per day. These data were calculated from data in Tables 2.4-2.6 and include incidental observations as well as censuses.

Codes:
N=number of Observations/Month
SD=Standard Deviation
-=not applicable
Yrs=number of years with at least one observation
MAX=maximum N or maximum number of Taxa; maximum Mean of Means when N is two or more.

	Waterbird Taxa/Observation														
	January				February				March				April				May			
Yr	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range
81	1	1	-	1	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
84	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
85	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
86	0	-	-	-	1	10	-	10	0	-	-	-	0	-	-	-	0	-	-	-
87	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	1	1	-	1
88	1	4	-	4	1	9	-	9	0	-	-	-	2	7.5	0.7	7-8	1	8	-	8
89	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
Yrs	3	-	-	-	2	-	-	-	0	-	-	-	1	-	-	-	2	-	-	-
SUM	2	-	-	-	2	-	-	-	0	-	-	-	2	-	-	-	2	-	-	-
MAX	1	-	-	4	1	-	-	10	0	-	-	-	2	7.5	-	8	1	-	-	8

	Waterbird Taxa/Observation																			
	June				July				August				September				October			
Yr	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range
81	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
84	0	-	-	-	0	-	-	-	0	-	-	-	1	7	-	7	2	7.0	0	7
85	0	-	-	-	0	-	-	-	0	-	-	-	1	2	-	2	2	5.5	4.9	2-9
86	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
87	0	-	-	-	2	5.5	0.7	5-6	1	7	-	7	2	10.0	1.4	9-11	0	-	-	-
88	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	1	8	-	8
89	0	-	-	-	1	1	-	1	0	-	-	-	0	-	-	-	0	-	-	-
Yrs	0	-	-	-	2	-	-	-	1	-	-	-	3	-	-	-	3	-	-	-
SUM	0	-	-	-	3	-	-	-	1	-	-	-	4	-	-	-	5	-	-	-
MAX	0	-	-	-	2	5.5	-	6	1	-	-	7	2	10.0	-	11	2	7.0	-	9

	Waterbird Taxa/Observation								Total
	November				December				Observations/
Yr	N	Mean	SD	Range	N	Mean	SD	Range	Year
81	0	-	-	-	0	-	-	-	1
84	4	7.8	2.9	4-10	0	-	-	-	7
85	1	5	-	5	0	-	-	-	4
86	0	-	-	-	0	-	-	-	1
87	0	-	-	-	2	3.5	2.1	2-5	8
88	0	-	-	-	0	-	-	-	6
89	0	-	-	-	1	1	-	1	2
Yrs	2	-	-	-	2	-	-	-	7
SUM	5	-	-	-	3	-	-	-	29
MAX	4	7.8	-	10	2	3.5	-	5	8

Table 2.2. Total waterbird taxa recorded each month and year at the Siletz Sewage Ponds. These data are calculated from Tables 2.1 and 2.4-2.6 and section 2-F.

Codes:
*=TOE month based on section 2-C and Table 2.1
Record=one bird taxon seen or heard during one Observation
Monthly Records (calculated from Table 2.1)= (number of Observations) X (Mean Taxa/Obs.), rounded to the nearest whole number
Total Records=sum of Monthly Records
Total Taxa=total number of taxa recorded each year
Records/Taxon=Total Records for year divided by the total number of taxa noted that year
Records/Obs.=Total Records for year divided by the number of Observations that year in Table 2.1
.=zero ("." is used to enhance readability)
MAX=maximum
#Taxa=total number of taxa seen during all of 1981-1989.

	Waterbird Taxa/Month.....												Total	Total	Records per...	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Records@	Taxa	Taxon	Obs.
1981	1	.	.	.	.	.	.	.	.	.	.	.	1	1	1.0	1.0
1984	.	.	.	.	.	.	.	.	7	9	13*	.	52	18	2.9	7.4
1985	.	.	.	.	.	.	.	.	2	9	5	.	18	12	1.5	4.5
1986	.	10	.	.	.	.	.	.	.	.	.	.	10	10	1.0	10.0
1987	.	.	.	.	1	.	7	7	12	.	.	6	46	17	2.7	5.8
1988	4	9	.	8	8	.	.	.	.	8	.	.	44	16	2.8	7.3
1989	.	.	.	.	.	.	1	.	.	.	.	1	3	2	1.5	1.5
MAX	4	10	.	8	8	.	7	7	12	9	13	6	52	18	2.9	10.0
60% of MAX	2.4	6.0	0.0	4.8	4.8	0.0	4.2	4.2	7.2	5.4	7.8	3.6	31.2	10.8	-	-
yrs of 60%	1	2	.	1	1	.	1	1	1	3	1	1	3	4	-	-
#Taxa	5	14	.	8	9	.	7	7	14	15	14	7	-	32	-	-
MAX/#Taxa	0.8	0.7	.	1.0	0.9	.	1.0	1.0	0.9	0.6	0.9	0.9	-	0.6	-	-

@ There were a grand total of 174 Records.

Table 2.3. Number and regularity of waterbird taxa at the Siletz Sewage Ponds for selected years. These data are calculated from section 2-F only for the four years that had 60% or more of the maximum number of taxa recorded in one year (MAX=18 taxa) in Table 2.2; these years include 1984, 1985, 1987, and 1988.

Greater and Lesser Scaup were counted as only one taxon, scaup spp., so there are 31 total taxa, not 32 as in Table 2.2.

Other Taxa=number of taxa only found in years with less than 60% of the yearly maximum number of taxa (i.e., in 1981, 1986, and 1989).

No. of Years with 60% or more of MAX	No. of Taxa	% of Total
1	11	39.3
2	5	17.9
3	6	21.4
4	6	21.4
Sum	28	100.0
Other Taxa	3	-

Table 2.4. Floyd Schrock's waterbird censuses at the Siletz Sewage Ponds. .=no birds present. Rails, swallows, and blackbirds are not listed, although they may have been present.

	1984							1985				1986
	9/23	10/14	10/21	11/3	11/18	11/28	11/30	9/21	10/5	10/11	11/23	2/25
Double-crested Cormorant	.	.	.	.	2#	.	.	.	.	.	.	.
Cattle Egret	.	.	.	1#	.	.	.	.	.	.	.	.
Canada Goose	.	.	.	2#	2#	2#	2#	.	.	.	.	.
Wood Duck	.	.	.	.	.	.	.	.	2	.	.	.
Green-winged Teal	6@	.	.	.	1#	.	.	.	.	.	.	.
Mallard	6@	6@	6@	6@#	.	.	.	.	12	.	.	2*
Northern Shoveler	20@	20@	20@	20@#	5#	5#	2#	.	4	.	3**	7*
Eurasian Wigeon	.	.	.	.	.	.	.	.	.	.	.	1*
American Wigeon	.	6@	6@	2@#	15#	41#	67#	.	3	.	26**	90*
Canvasback	.	.	.	.	.	.	.	.	.	.	.	2*
Ring-necked Duck	.	.	.	.	11#	2#	.	.	.	.	.	5*
Lesser Scaup	.	.	.	6@#	3#	2#	.	.	.	.	3**	2*
Bufflehead	.	.	.	8@#	25#	21#	10#	.	.	.	14**	12*
American Coot	.	.	2	2#	1#	.	.	.	.	.	.	1*
Killdeer	2	2	1	.	.	.	.	.	2	.	10**	2*
Spotted Sandpiper	.	.	1	1#	1#	1#	.	.	.	.	.	.
Western Sandpiper	2	.	.	.	.	.	.	.	.	.	.	.
Least Sandpiper	1	.	.	.	.	.	.	.	.	.	.	.
Pectoral Sandpiper	6@	6@	.	.	.	.	.	3	12	2	.	.
Short-billed Dowitcher	.	.	.	.	.	.	.	.	3	1	.	.
Long-billed Dowitcher	.	3	.	.	.	.	.	.	1	.	.	.
Common Snipe	.	1	1	5#	.	.	.	.	.	.	.	.
Red-necked Phalarope	.	.	.	.	.	.	.	1	.	.	.	.
Glaucous-winged Gull	.	.	.	.	.	.	.	.	1	.	.	.
TOTAL TAXA	7	7	7	10	10	7	4	2	9	2	5	10
TOTAL BIRDS	43@	44@	37@	53@	66	74	81	4	40	3	56	124

@=Number censused is an estimate.

* At Newport, minimum temperatures for Feb. 22-25 were 47-48 F (NCDC), so freezing is not correlated with the presence of these birds and particularly so many wigeon.

** At Newport, minimum temperatures for Nov. 20-23 were 21-29 F (maxima of 32-45 F)(NCDC), so freezing is correlated with the presence of these birds, especially the high number of 10 Killdeer.

At Newport, minimum temperatures for Nov. 1-30 were 34 F or more with a total of only eight days less than 40 F (NCDC), so the presence of these birds is not correlated with freezing.

Table 2.5. Darrel Faxon's waterbird observations at the Siletz Sewage Ponds. .=no birds present. X=birds present but not counted. Rails, swallows, and blackbirds are not listed, although they may have been present.

	1987					1988						
	7/14	7/28	8/4	9/15	9/22	12/6	1/17	2/2	4/12	4/26	5/10	10/2
Canada Goose	.	.	.	.	.	X*	.	.	.	.	.	.
Wood Duck	.	.	X	X	X	.	.	X#	X	X	X	X
Green-winged Teal	.	.	.	X	X	.	.	X#	.	.	.	X
Mallard	X	X	X	X	X	X*	X*	X#	X	X	X	X
Northern Pintail	.	.	.	X	X	.	.	X#	.	.	.	X
Northern Shoveler	.	.	.	X	X	X*	.	X#	X	X	X	X
Eurasian Wigeon	.	.	.	.	.	X*	X*	.	.	.	.	.
American Wigeon	X	X	X	X	X	.	X*	X#	X	X	.	.
Redhead	.	.	.	.	.	.	.	X#	.	.	.	.
Ring-necked Duck	.	.	.	.	.	.	.	X#	X	X	.	.
Greater Scaup	.	.	.	.	.	.	.	.	.	.	2	X
Bufflehead	.	.	.	.	.	.	.	.	X	X	X	.
Hooded Merganser	.	.	X	.	.	.	.	.	.	.	.	.
Osprey	.	.	.	.	X	.	.	.	.	.	.	.
Killdeer	X	X	X	X	X	X*	X*	X#	X	X	X	.
Lesser Yellowlegs	.	X	.	.	.	.	.	.	.	.	.	.
Spotted Sandpiper	X	X	X	X	.	.	.	.	.	.	X	.
Least Sandpiper	X	.	X	.	X	.	.	.	.	X	X	.
Pectoral Sandpiper	.	.	.	X@	X@	.	.	.	.	.	.	X@
Long-b. Dowitcher	.	X	.	.	X	.	.	.	.	.	.	X
TOTAL TAXA	5	6	7	9	11	5	4	9	7	8	8	8

@ 2-5 Pectoral Sandpipers were present.
* At Otis (Newport data not available), minimum temperatures for Dec. 2-6 were 35-47 F (maxima of 49-58 F); at Newport, minima for Jan. 12-16 were 33-40 F (maxima of 48-58 F) and for Jan. 17 was just barely freezing 32 F (maximum of 47 F)(NCDC). So the presence of these birds was not correlated with freezing.
# At Newport, minimum temperatures for Feb. 1-2 were 25-28 F (maxima of 42-45 F)(NCDC), so the presence of these birds was correlated with freezing.

Table 2.6. Incidental waterbird records at the Siletz Sewage Ponds.

Observer's initials:
DF=Darrel Faxon
JL=Janet Lamberson

Observations:
1980-1981 winter (JL). 1 Tundra Swan remained during the winter and was still there in late January 1981.
5/11/87 (DF). 4 Red-necked Phalaropes.
12/13/87 (DF). 1 male Eurasian Wigeon with American Wigeon.
7/6/89 (DF). 1 Lesser Yellowlegs.
12/16/89 (DF). 1 Gr. White-fronted Goose.

****

Chap. 3. WATERBIRDS OF GRAVEL PONDS NEAR THE LOGSDEN STORE

****

3-A. INTRODUCTION

All 1983-1985 observations were by Floyd Schrock and almost all 1986-1991 observations were by Bob Llewellyn. There were no observations in 1992.

Bayer compiled these observations into the present format and prepared various drafts of this Chapter for publication. Schrock looked at or commented on the March 1985, February 1990, and July 1993 drafts, and Llewellyn commented on the February 1990 and July 1993 drafts.

****

3-B. STUDY AREA

Location: T9S, R9W, Section 33, SW 1/4
Area Studied: ?
Habitat(s): Gravel Pit Ponds
Elevation: 220-240 ft (67-73 m)
Distance to Coastline: 12.7 mi (20.6 km).

These are several, sometimes connected channels and ponds in a marshy area near the Siletz River at River Mile 49, just north of the Logsden Store; they are about one mile (0.6 km) downstream of Llewellyn's West Beaver Pond (Fig. 1.1). These ponds are largely filled with water thoughout the year.

Gravel extraction at these ponds appears to be intermittent. Some of the gravel machinery was present in mid-1990 at the east pond (Fig. 3.1).

The water level in these ponds fluctuates greatly. Until about 1990, these separate ponds had a total area roughly estimated to be about 2 acres (0.8 ha) of open water, and the ponds were about 3 ft (0.9 m) deep. But sometime before May 1990, the water level rose and connected the ponds to form a single large pond, and it was over 6 ft (1.8 m) deep in the middle. In June 1992, Chuck Philo noted that the water level was again very low.

In 1990, some parts did not seem to have been disturbed for several years, so some shrubs and small trees grew around the edge of the ponds (Figs. 3.1 and 3.2). In the summer of 1990, dirt was bulldozed over most of the marsh vegetation along much of the east and southern banks of the east pond (e.g., Fig. 3.1).

There used to be no beavers here, but they were here in 1990 and may have caused the flooding of these ponds. Some muskrats were also sometimes seen.

Probably all observations were at the east pond because the access road to these ponds from Highway 410 was along its eastern shore.

****

3-C. OBSERVATION METHODS

Observations in 1983-1985 and March 1986 were by Floyd Schrock. He used binoculars and occasionally a 25x spotting scope to make his observations. Most of his observations were in the afternoon and lasted about 20 minutes with a range of about 10-60 minutes.

From 1986 until about 1989, Llewellyn's observations were usually made in the morning from his pickup truck on a hill overlooking the ponds. He used binoculars to survey portions of the ponds that were not obscured by vegetation, and his observations lasted about 5-10 minutes. Llewellyn noted that if he got out of his pickup, the birds would fly or hide in the vegetation. In about 1989, brush obscured Llewellyn's vision from his pickup, and he usually walked to the northeast side of the ponds to observe them.

Because of the several channels, obscuring vegetation, and the disturbance created by an observer's approach (which may have caused birds to hide in the vegetation), not all birds that may have been present may have been detected, so these observations should be considered incomplete.

Bayer noted in his July 1990 visit that birds were extremely wary here and disappeared amongst the vegetation upon his approach. To be thoroughly studied, a blind and a wait of at least 30 minutes may be necessary to see all waterbirds present at part of one pond. But because of the many channels, it would not be possible to have a single blind where one could observe all birds.

Only waterbirds are included in this Chapter, not marshbirds such as rails, swallows, or Red-winged Blackbirds that may have been present and using the water but which were not noted specifically as being over the water as opposed to using adjacent terrestrial areas. Records of swallows, blackbirds, and other marsh birds that were recorded are given in Llewellyn and Bayer 1994:189-190.

There were no observations here in 1992.

****

3-D. TOLERABLE OBSERVATION EFFORT (TOE)

Because so much of these ponds is obscured by vegetation, the birds were wary, and observation methods weren't standardized and systematic. Thus, these observations are all considered incidental and do not qualify as TOE.

****

3-E. SHORTCOMINGS OF OBSERVATIONS

These observations are important in determining what birds were sometimes present or possibly nesting, but there are several shortcomings.

First, observations needed to be more systematic with the time of day and duration of observations recorded. Second, birds may have disappeared before the observer had a chance to

see them; an observation blind would be essential to determine use of these ponds by wary waterbirds. Third, the number and length of observations each month should have been greater to better establish waterbird presence and abundance. Fourth, water depth in these ponds needs to be better documented, so that physical changes in these ponds could be correlated with what waterbirds are present. Fifth, the observer didn't make a map to show what portion of the ponds was observed, so it is not clear what area was observed; a map of the study area is essential here because the water level appears to fluctuate so greatly.

But even with these improvements in methodology, it may not be feasible to systematically census these ponds because of the intervening vegetation and lack of a single overlook to simultaneously view all these ponds.

****

3-F. CURSORY RESULTS AND DISCUSSION

There were 58 observations during 1983-1992, with no observations in 1988 and 1992 (Table 3.1). The greatest number of observations (22) was in 1985, and most observations were during March-August (Table 3.1).

Usually, only 1-3 taxa/observation were noted, but in April, July, and August 5-7 taxa were sometimes found (Table 3.1); the most taxa/month also occurred in these months (Table 3.2).

21 waterbird taxa were recorded, with a maximum of 15 taxa/year in 1990, when there were also the most total records (Table 3.2). But because there were only two years when 60% or more of the yearly maximum were recorded (Table 3.2), the number of years that each taxon was recorded was not tabulated.

These ponds appeared to be used, at least sometimes, for nesting or brood rearing by Pied-billed Grebes, Cinnamon Teal, Hooded Mergansers, and perhaps also by Spotted Sandpipers (section 3-G).

Purple Martins were not seen during any observation.

****

3-G. TAXA ACCOUNTS

Combined years of occurrence of taxa at Logsden Gravel Ponds. These data are calculated from Table 3.3.

Data for November-February are too sparse to do meaningful analyses for correlation with freezing at Newport (see section 1-C-2).

Codes:
?=taxon not recorded, so the taxon may have been absent or it may have been present but overlooked.
(number)=year in which a taxon was recorded (e.g., 90=1990).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Double-c. Cormorant	?	?	?	?	?	?	?	?	?	?	?	90
Pied-billed Grebe	?	?	?	?	91	?	90	90	?	?	?	?
Great Blue Heron	91	?	?	?	?	?	86	?	?	91	?	?
Great Egret	?	?	?	?	?	?	?	83	?	?	?	?
Green-backed Heron	?	?	?	?	90	?	90	90	?	?	?	?
Canada Goose	85	?	?	?	?	?	?	?	?	83	?	?
Wood Duck	?	?	86	90	?	?	?	?	?	?	?	?
Mallard	?	89,91	87	90,91	91	?	86,90	90	?	?	90	?
unknown teal	?	?	?	?	?	?	?	90	?	91	?	?
Blue-w./Cinn. Teal	?	?	?	?	?	85	85,86	85	?	?	?	?
Cinnamon Teal	?	?	?	83,85,90	85	85?	85?,86?	85?	?	?	?	?
Ring-necked Duck	91	?	90	91	?	?	?	?	?	?	86	?
Bufflehead	91	91	87,90,91	87,90,91	?	?	?	?	?	91	90	?
Hooded Merganser	?	89	?	90,91	84,86,90,91	83,91	85	90	?	?	90	?
American Coot	91	?	?	91	?	?	?	?	?	?	?	?
Killdeer	?	?	87	90	90	?	86	90	?	?	?	?
Greater Yellowlegs	?	?	?	90	?	?	?	?	?	?	?	?
Solitary Sandpiper	?	?	?	85	?	?	?	?	?	?	?	?
Spotted Sandpiper	?	?	?	?	90	85	86	?	?	?	?	?
Pectoral Sandpiper	?	?	?	?	?	?	?	?	84	?	?	?
Common Snipe	?	?	?	90	?	?	?	?	?	83	?	?
Belted Kingfisher	?	?	?	?	?	?	86	90	?	?	?	?

Double-c. Cormorant: Two were only noted in December 1990, so they appear to be rare and may only be here when the water is high.

Pied-billed Grebe: They did not appear until 1990, when water levels were high, which suggests that water depth may be important in determining their presence and nesting. The August 1990 presence of juveniles suggests that they may have nested here in 1990.

Green-backed Heron: Green-back's were only detected in 1990, which indicates that they may prefer deeper water.

Canada Goose: Some Canada Geese appeared to roost here at night at least once.

Cinnamon Teal: Although separating female Blue-winged from female Cinnamon teal is difficult, Cinnamon Teal probably nested in 1985, and either Blue-winged or Cinnamon teal also nested in 1986.

Hooded Merganser: Hooded Mergansers were common in spring and brought their broods here in at least 1983-1986, 1990, and 1991. In 1987-1989, there were no observations in May-June, so it is not determinable if they may have brought broods here. In June 1983, May 1990, and June 1991; at least two females brought broods.

Spotted Sandpiper: A Spotted Sandpiper appeared to nest here or nearby in June 1985.

****

3-H. FIGURES AND TABLES

Fig. 3.1 (above). View west/northwest of gravel equipment at the east pond of the Gravel Ponds near the Logsden Store. This photo was taken at the east pond's eastern shore on 29 July 1990 with a "normal," 1x lens, when water levels were high. Note the dirt in the foreground and along the north edge that had been recently bulldozed to the waters edge of the east pond. Also note the willows and other vegetation in the water that served as cover for birds and that also obscured them during observations.

Fig. 3.2 (below). View south/southeast from northeast edge of east pond of the Gravel Ponds near the Logsden Store. This photo was taken on 19 August 1990 with a "normal," 1x lens. Note the short willows and red alders growing at the waters edge that provided cover for birds. Bob Llewellyn said that the patch of old-growth timber in the upper left corner of the photo was owned by the Siletz Indians; the patch was several miles away.

Table 3.1. Number of Observations and number of waterbird Taxa/Observation at Gravel Ponds near Logsden Store. There was one Observation per day. Teal not identified to species were counted as only one taxon. These data were calculated from data in Table 3.3. There were no observations in 1988 and 1992.

Codes:
N=number of Observations/Month
SD=Standard Deviation
-=not applicable
Yrs=number of years with at least one observation
MAX=maximum N or maximum number of Taxa; maximum Mean of Means when N is two or more.

	Waterbird Taxa/Observation														
	January				February				March				April				May			
Yr	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range
83	0	-	-	-	0	-	-	-	0	-	-	-	1	1	-	1	0	-	-	-
84	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	1	1	-	1
85	1	1	-	1	0	-	-	-	0	-	-	-	3	1.3	0.6	1-2	5	1.0	0	1
86	0	-	-	-	0	-	-	-	1	1	-	1	0	-	-	-	1	1	-	1
87	0	-	-	-	0	-	-	-	2	2.0	0	2	1	1	-	1	0	-	-	-
89	0	-	-	-	1	2	-	2	0	-	-	-	0	-	-	-	0	-	-	-
90	0	-	-	-	0	-	-	-	1	2	-	2	4	4.8	1.3	3-6	1	4	-	4
91	2	2.5	2.1	1-4	1	2	-	2	1	1	-	1	1	5	-	5	1	3	-	3
92	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	1	-	-	-	-
Yrs	2	-	-	-	2	-	-	-	4	-	-	-	5	-	-	-	5	-	-	-
SUM	3	-	-	-	2	-	-	-	5	-	-	-	10	-	-	-	9	-	-	-
MAX	2	2.5	-	4	1	-	-	2	2	2.0	-	2	4	4.8	-	6	5	1.0	-	4

	Waterbird Taxa/Observation														
	June				July				August				September				October			
Yr	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range	N	Mean	SD	Range
83	2	1.0	0	1	0	-	-	-	1	1	-	1	0	-	-	-	1	2	-	2
84	0	-	-	-	0	-	-	-	0	-	-	-	2	1.0	0	1	0	-	-	-
85	7	1.0	0	1	4	1.0	0	1	2	1.0	0	1	0	-	-	-	0	-	-	-
86	0	-	-	-	1	6	-	6	0	-	-	-	0	-	-	-	0	-	-	-
87	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
89	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
90	0	-	-	-	2	1.5	0.7	1-2	2	4.0	4.2	1-7	0	-	-	-	0	-	-	-
91	1	1	-	1	0	-	-	-	0	-	-	-	0	-	-	-	1	3	-	3
92	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	1	-	-	-	-
Yrs	3	-	-	-	3	-	-	-	3	-	-	-	1	-	-	-	2	-	-	-
SUM	10	-	-	-	7	-	-	-	5	-	-	-	2	-	-	-	2	-	-	-
MAX	7	1.0	-	1	4	1.5	-	6	2	4.0	-	7	2	1.0	-	1	1	-	-	3

	Waterbird Taxa/Observation								Total
	November				December				Observations/
Yr	N	Mean	SD	Range	N	Mean	SD	Range	Year
83	0	-	-	-	0	-	-	-	5
84	0	-	-	-	0	-	-	-	3
85	0	-	-	-	0	-	-	-	22
86	1	1	-	1	0	-	-	-	4
87	0	-	-	-	0	-	-	-	3
89	0	-	-	-	0	-	-	-	1
90	1	3	-	3	1	1	-	1	12
91	0	-	-	-	0	-	-	-	8
92	0	-	-	-	0	-	-	-	0
Yrs	2	-	-	-	1	-	-	-	8
SUM	2	-	-	-	1	-	-	-	58
MAX	1	-	-	3	1	-	-	1	22

Table 3.2. Total waterbird taxa recorded each month and year at Gravel Ponds near Logsden Store. These data are calculated from Table 3.1 and section 3-G. Teal not identified to species were all counted as only one taxon. There were no observations in 1988 and 1992.

Codes:
Record=one bird taxon seen or heard during one Observation
Monthly Records (calculated from Table 3.1)= (number of Observations) X (Mean Taxa/Obs.), rounded to the nearest whole number
Total Records=sum of Monthly Records
Total Taxa=total number of taxa recorded each year
Records/Taxon=Total Records for year divided by the total number of taxa noted that year
Records/Obs.=Total Records for year divided by the number of Observations that year in Table 3.1
.=zero ("." is used to enhance readability)
MAX=maximum
#Taxa=total number of taxa seen during all of 1983-1992.

	Waterbird Taxa/Month.....												Total	Total	Records per...	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Records@	Taxa	Taxon	Obs.
1983	.	.	.	1	.	1	.	1	.	2	.	.	6	5	1.2	1.2
1984	.	.	.	.	1	.	.	.	1	.	.	.	3	2	1.5	1.0
1985	1	.	.	2	1	2	2	1	.	.	.	.	23	5	4.6	1.0
1986	.	.	1	.	1	.	6	.	.	.	1	.	9	9	1.0	2.3
1987	.	.	3	1	.	.	.	.	.	.	.	.	5	3	1.7	1.7
1989	.	2	.	.	.	.	.	.	.	.	.	.	2	2	1.0	2.0
1990	.	.	2	8	4	.	3	7	.	.	3	1	40	15	2.7	3.3
1991	4	2	1	5	3	1	.	.	.	3	.	.	20	8	2.5	2.5
1992	.	.	.	.	.	.	.	.	.	.	.	.	0	0	-	-
MAX	4	2	3	8	4	2	6	7	1	3	3	1	40	15	4.6	3.3
60% of MAX	2.4	1.2	1.8	4.8	2.4	1.2	3.6	4.2	0.6	1.8	1.8	0.6	24.0	9.0	-	-
yrs of 60%	1	2	2	2	2	1	1	1	1	2	1	1	1	2	-	-
#Taxa	5	3	5	11	7	3	9	8	1	5	4	1	-	21	-	-
MAX/#Taxa	0.8	0.7	0.6	0.7	0.6	0.7	0.7	0.9	1.0	0.6	0.8	1.0	-	0.7	-	-

@ There were a grand total of 108 records.

Table 3.3. Waterbirds detected at Logsden Store Gravel Ponds. The following observations are incidental, not systematic, so some birds that may have been present may have been missed. Time of observations, if known, is given in parentheses in Pacific Standard Time by the 24 hour clock (i.e., add 1200 to times after 1200; e.g., 1 PM=1300). There were no observations in 1988 and 1992.

Observer's initials:
RB=Range Bayer
BL=Bob Llewellyn
FS=Floyd Schrock
PS=Peter Schrock.
Other codes:
F=female or immature male in female-type plumage
M=male.
+=at least this number of birds was present

4/14/83 (FS). 5 Cinnamon Teal.
6/7/83 (FS). 2 F Hooded Mergansers, each with a brood of 7 young. The broods were of different sizes.
6/11/83 (FS). 1 brood of Hooded Mergansers.
8/21/83 (FS). 3 Great Egrets.
10/23/83 (FS). 11 Common Snipe, 1 Canada Goose.
5/18/84 (FS). 1 F Hooded Merganser with young.
9/2 & 15/84 (FS). 1 Pectoral Sandpiper.
late January 1985 (FS). 16 Canada Geese spent the day in a field nearby & came here to spend the night. [Note that such use at night could be easily overlooked.]
4/9/85 (FS). 1 M Cinnamon Teal, 1 Solitary Sandpiper.
4/11/85 (FS). 1 M Cinnamon Teal.
4/29/85 (FS). 1 Solitary Sandpiper.
5/7, 12, 23, 24, & 30/85 (FS). 1 M Cinnamon Teal.
6/1, 8, 9, 16 & 24/85 (FS). 1 M Cinnamon Teal in bright plumage.
6/25/85 (FS). F Cinnamon (?) Teal & 7 very young ducklings. FS writes that the female appeared too brown, too long-billed, and too indistinctly patterned on the face to be a female Blue-winged Teal. [RB's comments: because of the presence of the male Cinnamon, this is most likely a female Cinnamon, but a female Blue-winged can't be ruled out because Terres 1980:240 writes that the females of these two species are virtually identical and that these two species hybridize.]
6/28/85 (FS). 1 Spotted Sandpiper carrying an eggshell.
early July 1985 (FS). 1 F Hooded Merganser with 8 young.
7/4, 12, & 18/85 (FS). 1 F Cinnamon (?) Teal with young. (See 6/25/85 comments.)
8/13 & 18/85 (FS). 1 F Cinnamon (?) Teal with young. (See 6/25/85 comments.)
3/17/86 (FS). 2 Wood Ducks.
5/14/86 (PS). 1 F Hooded Merganser with 10 young.
7/5/86 (BL). 7 Killdeer, 2 Spotted Sandpipers, 1 Great Blue Heron, 6 Mallards, 1 F Cinnamon or Blue-winged teal with 8 young, 1 Belted Kingfisher.
11/10/86 (BL). 1 Ring-necked Duck.
3/10/87 (BL). 1+ Killdeer, 4 F and 1 M Buffleheads.
3/28/87 (BL). 1+ Mallard, 1+ Bufflehead.
4/16/87 (BL). 2 M and 8 F Buffleheads.
2/15/89 (BL). 2 pairs of Hooded Mergansers, 1 pair of Mallards.
3/28/90 (BL). 1+ Bufflehead, 1+ Ring-necked Duck.
4/3/90 (BL). 2 Greater Yellowlegs, 4 pairs of Buffleheads, 3 Killdeer, 3 pairs of Mallards, 1 Common Snipe.
4/5/90 (BL). 4 pairs of Buffleheads, 1 pair of Cinnamon Teal, 1 pair of Mallards.
4/13/90 (BL). 1 Greater Yellowlegs, 2 M and 1 F Cinnamon Teal, 3 pairs of Buffleheads, 1 pair of Mallards, 1 F Hooded Merganser, 1 Killdeer.
4/22/90 (afternoon)(BL). 1+ Mallard, 1+ Bufflehead, 1 Cinnamon Teal, 1 M Wood Duck, 3 Common Snipe.
5/27/90 (1500-1800 PST)(BL). 1+ Spotted Sandpiper, 1+ Killdeer, 2 F Hooded Mergansers each with brood of ducklings, 3 Green-backed Herons.
7/25/90 (morning)(BL). 1 Mallard.
7/29/90 (1825-1840 PST)(RB). 3+ Green-backed Herons, 1 Pied-billed Grebe.
8/12/90 (0600-0830 PST)(BL). 4 Green-backed Herons, 2 female Mallards, 1 F Hooded Merganser, 2 unknown teal, 1 dead immature Pied-billed Grebe, 1 Belted Kingfisher, 2 Killdeer.
8/19/90 (1800-1815 PST)(BL & RB). 1 adult and 2 large young of year Pied-billed Grebes.
11/8/90 (BL). 1+ Mallard, 3 F Buffleheads, 1 F Hooded Merganser.
12/12/90 (BL). 2 Double-crested Cormorants.
1/24/91 (BL). 3 Ring-necked Ducks, 7 M and 7 F Buffleheads, 2 Am. Coot, 1 Great Blue Heron.
1/28/91 (BL). 1+ Bufflehead.
2/19/91 (BL). 1+ Mallard, 1+ Bufflehead.
3/16/91 (BL). 3 pair of Buffleheads.
4/6/91 (BL). Am. Coot, Bufflehead, Hooded Merganser, Ring-necked Duck, Mallard.
5/25/91 (BL). Pair of Mallards, F Hooded Merganser, Pied-billed Grebe.
6/12/91 (BL). 2 broods of Hooded Mergansers.
10/10/91 (BL). Great Blue Heron, Bufflehead, unknown teal.

Chap. 4. WATERBIRDS AT FOUR OTHER SILETZ/LOGSDEN AREA PONDS

4-A. INTRODUCTION

This Chapter is for waterbirds seen at four ponds other than Llewellyn's Beaver Pond (Chap. 1), the Siletz Sewage Ponds (Chap. 2), or the Gravel Ponds near the Logsden Store (Chap. 3).

All observations in this Chapter were by Bob Llewellyn.

4-B. STUDY AREAS AND METHODS

Using unaided eyes or binoculars, Llewellyn noted waterbirds in four small permanent or seasonal ponds, whose location is shown in Fig. 1.1. Information about each pond is given with observations in Table 4.1.

These 17 observations in 1986-1992 are incidental, not systematic, so some birds that may have been present may have been missed; there were no observations in 1992. Llewellyn made no observations at any of these ponds in 1992. The duration and time of day of these observations was not recorded. Rails, swallows, and blackbirds are not included, although they may have been present.

Since these ponds were near roads, houses, or farming activity, they were all subject to some human disturbance, but the degree of disturbance is unknown.

4-C. SHORTCOMINGS OF OBSERVATIONS

The principal shortcoming of these records is that there are usually too few observations at each site to indicate bird usuage of each pond. Further, these observations were usually not systematically made (e.g., the time and duration of observations are generally unknown). These problems, coupled with the wariness of birds at some of these ponds that makes them much more difficult to observe, makes it clear that these bird records are incomplete and represent only presence data, not presence/absence data (Bayer 1993:14-15).

4-D. CURSORY RESULTS

Combining the results for the four ponds, there were 17 observations (Table 4.1) and seven waterbird species (section 4-E). The two most frequent species were Wood Ducks and Hooded Mergansers (section 4-E). There were no observations to determine if any waterbirds nested at any of these ponds.

Purple Martins were not seen during any observation.

4-E. TAXA ACCOUNTS

Combined years of occurrence of taxa for the four ponds. These data were calculated from Table 4.1.

Codes:
(number)=year in which a taxon was recorded (e.g., 90=1990)
?=taxon not recorded, so the taxon may have been absent, or it may have been present but overlooked.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Double-crested Cormorant	87	?	?	?	?	?	?	?	?	?	?	?
Great Blue Heron	?	?	87	?	?	?	?	?	?	?	?	?
Wood Duck	?	?	91	90	91	?	?	?	?	?	?	?
Only 1-2 Wood Ducks were noted at a time per pond.												
Mallard	90	?	?	?	?	?	?	?	?	?	?	?
Ring-necked Duck	?	?	91	?	?	?	?	?	?	?	?	?
Bufflehead	?	?	91	?	?	?	?	?	?	?	?	?
Hooded Merganser	87,90	90	87	?	?	?	?	?	?	?	?	86
Only 1-2 Hooded Mergansers were seen at a time per pond.												

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4-F. TABLE

Table 4.1. Llewellyn's waterbird records at four ponds. Note that these ponds are not named on a quadrangle map and are named by Llewellyn, usually on the basis of the names of local residents or landmarks. Alternative names are given in parentheses.

(A) RAGER'S POND (or Braziel's Woods Pond)

Location: T9S, R9W, Sec. 33, border of NE & SE 1/4
Area Studied: <1 ac (<0.4 ha)
Habitat(s): Lake
Elevation: 200-240 ft (61-73 m)
Distance to Coastline: 13.2 mi (21.4 km).

This is a small permanent pond adjacent to and on the east side of Highway 307 (Fig. 1.1) and is partially visible from it.

3/3/87. 1 Great Blue Heron.
8/19/90 (1730 PST). No birds, although not dry. But the observer's approach may have disturbed any birds present.
3/22/91. Pair of Wood Ducks.

(B) CASE'S POND (or Wilson's or Weisgaver's Pond)

Location: T10S, R9W, Section 4, NW 1/4
Area Studied: <1 ac (<0.4 ha)
Habitat(s): Lake
Elevation: 180-200 ft (55-61 m)
Distance to Coastline: 12.6 mi (20.4 km).

This is a seasonal pond adjacent to and north of Highway 410 (Fig. 1.1) and is visible from it.

12/28/86. 1+ Hooded Merganser.
3/6/87. Pair of Hooded Mergansers.
1/20/90. Pair of Mallards, pair of Hooded Mergansers.
2/16/90. Pair of Hooded Mergansers.
8/19/90. No birds; no standing water.
3/22/91. Pair of Buffleheads, pair of Ring-necked Ducks.

(C) OLMAN'S POND

Location: T10S, R9W, Sec. 6, border NW & NE 1/4
Area Studied: about 2 ac (about 0.8 ha)
Habitat(s): Gravel Pit/Lake
Elevation: 160-180 ft (49-55 m)
Distance to Coastline: 10.7 mi (17.3 km).

This is a permanent pond north of Highway 410 (Fig. 1.1). It is the westernmost of a series of three permanent ponds that run parallel with and are within about 0.3 mi (0.5 km) of Highway 410. This pond is not visible from the road and appears to be an abandoned gravel pit.

1/11/87. 1 Double-crested Cormorant, 1+ Hooded Merganser.
8/19/90. No birds, but the observer's approach may have disturbed any birds present. 1 beaver was present.

(D) LEISURE LANE POND

Location: T10S, R10W, Section 1, NW 1/4
Area Studied: <1 ac (<0.4 ha)
Habitat(s): Lake
Elevation: 160-180 ft (49-55 m)
Distance to Coastline: 9.5 mi (15.4 km).

This is a permanent pond near and south of Highway 410 (Fig. 1.1) and is visible from it.

4/3 & 5/90. Pair of Wood Ducks.
4/11/90 (dusk). Pair of Wood Ducks.
4/24/90. 1 male Wood Duck.
4/28/90. Pair of Wood Ducks.
5/15/91. Pair of Wood Ducks.

Chap. 5. WATERBIRDS AT SIX SILETZ/LOGSDEN AREA FARM FIELDS

5-A. INTRODUCTION

This Chapter only includes waterbirds seen at farm fields in the Siletz/Logsden area.

5-B. STUDY AREAS AND METHODS

Except for a January 1991 record by Phil Lamberson (Table 5.1D) and two 1985 notes by Floyd Schrock (Table 5.1E), Bob Llewellyn used unaided eyes or binoculars to make all waterbird observations at these fields or pastures that were sometimes seasonally flooded. The approximate location for each site is shown in Fig. 1.1 and the location and bird records are given in Table 5.1.

These 24 observations during 1985-1992 are incidental, not systematic, so some birds that may have been present may have been missed; Llewellyn made no observations in 1992. The duration and time of day of these observations was not recorded. Rails, swallows, and blackbirds are not included, although they may have been present.

Since these fields were near roads, houses, or farming activity, they were all subject to an unknown degree of human disturbance.

Some correlations of bird presence with freezing temperatures at Newport for temperatures given by NCDC (see Literature Cited) are made (see section 1-C-2).

5-C. SHORTCOMINGS OF OBSERVATIONS

The main shortcoming is that there are too few observations to determine waterbird use of any of these fields. Further, observations in which no waterbirds were present were generally not recorded, so these represent only presence data, not presence/absence data.

Finally, it would have been useful if the presence and extent of standing water was noted for each observation at each field, so that it would be clear if water was important to the waterbirds present.

5-D. CURSORY RESULTS

Combining the results for all six fields, there were 24 observations (Table 5.1) and seven waterbird species (section 5-E). The most frequent species appear to be Canada Geese, Mallards, and American Wigeon (section 5-E). There were no observations to determine if any waterbirds nested at any of these fields.

5-E. TAXA ACCOUNTS

Combined years of occurrence of taxa at six farm fields. These data were calculated from Table 5.1.

Freezing temperature data are discussed in section 1-C-2 (p. 102-103).

Codes:
(number)=year in which a taxon was recorded (e.g., 90=1990)
?=taxon not recorded, so the taxon may have been absent, or it may have been present but overlooked.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Great Blue Heron	90	?	?	?	?	?	?	?	?	?	?	88
Snow Goose	?	?	?	?	?	?	?	?	?	?	?	85
Canada Goose	85,91	91	?	?	?	?	?	?	?	91	?	89,90
Wood Duck	?	?	?	90	90	?	?	?	?	?	?	88
Mallard	90	87	?	90	90	?	?	?	?	?	?	?
24 Mallards were once noted in December 1988, and these were not correlated with freezing.												
Gadwall	90	?	?	?	?	?	?	?	?	?	?	?
American Wigeon	90,91	87,91	87	?	?	?	?	?	?	?	?	?
American Wigeon were present in January 1990, and several hundred were noted several times in January and February 1991; these numbers were often not correlated with freezing.												

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5-F. TABLE

Table 5.1. Waterbird records at six farm fields. These fields are not named on a quadrangle map; except for (E), all fields are named by Llewellyn, usually on the basis of the names of local residents or landmarks.

(A) MANN'S FIELD

Location: T9S, R9W, Section 20, NW1/4
Area Studied: ?
Habitat(s): Farm Field
Elevation: 240-280 ft (73-85 m)
Distance to Coastline: 11.9 mi (19.3 km).

Also see Fig. 1.1 for approximate location. This field was adjacent to the east side of Highway 307 and is visible from it.

12/28/88*. 24 Mallards, 1 Great Blue Heron.
1/14/90. 8 Mallards, 1 Great Blue Heron.
8/19/90. No birds; dry.

* At Newport, minimum temperatures for Dec. 27-28 were 34 F (maxima of 45-48 F)(NCDC), so these birds' presence is not correlated with freezing.

(B) FIELD AT MILL CREEK

Location: T9S, R9W, Section 28, SE 1/4
Area Studied: ?
Habitat(s): Farm Field
Elevation: 200-280 ft (61-85 m)
Distance to Coastline: 13.3 mi (21.5 km).

Also see Fig. 1.1 for approximate location. This field was adjacent to the east side of Private Road 400 near the Boy's Ranch, east of Highway 307. It is visible from the road and was sometimes flooded in winter.

4/29/90. 2 female and 1 male Wood Ducks.
4/30/90. Pair of Mallards.

(C) FARMER BOB'S FIELD

Location: T9S, R9W, Section 33, NW 1/4
Area Studied: ?
Habitat(s): Farm Field
Elevation: 200-240 ft (61-73 m)
Distance to Coastline: 12.6 mi (20.4 km).

Also see Fig. 1.1 for approximate location. This field was not adjacent to a road.

12/25/89. about 40 large Canada Geese*.

* Minimum temperatures at Newport, Otis, and Tidewater for 23-25 December 1989 were 34 F or more (NCDC), so freezing was probably not the cause of this large number of Canada Geese.

(D) WEISGAVER'S FIELDS

Location: T9S, R9W, Section 33, SW 1/4
Area Studied: ?
Habitat(s): Farm Field
Elevation: 200-240 ft (61-73 m)
Distance to Coastline: 12.6 mi (20.4 km).

Also see Fig. 1.1 for approximate location. This field was near Highway 410 and is visible from it.

1/9/91*. 300+ Am. Wigeon. (Llewellyn doesn't remember seeing any ducks or geese here in previous years.)
1/19/91. Phil Lamberson saw 50 Canada Geese.
1/28/91*. 50+ Am. Wigeon.
1/29/91*. 300+ Am. Wigeon.
2/14/91*. 50 Am. Wigeon, 4 Canada Geese.
2/15/91*. 200+ Am. Wigeon.
10/22/91. 8 Canada Geese.
10/30/91. 1+ Canada Goose with domestic geese.

* At Newport, minimum temperatures for Jan. 7-9 were 38-44 F (maxima of 48-52 F), Jan. 26-28 were 26-38 F (maxima of 47-50 F), Jan. 28-29 were 30-38 F (maxima of 46-48 F), and Feb. 10-15 were 42-47 F (maxima of 51-60 F) (NCDC). Thus, sometimes these birds' presence may have been correlated with freezing and sometimes not.

(E) LOGSDEN FIELD

Location: T9 or 10S, R9W
Area Studied: ?
Habitat(s): Farm Field
Elevation: ?
Distance to Coastline: ?.

The location of this field is unknown, but it was near Logsden, perhaps in the field just SW of the Logsden Store.

1/20 & 30/85. Floyd Schrock saw 16 Canada Geese on the ground.
12/24/85. Floyd Schrock saw five Snow Geese on the ground.

(Table 5.1 continued on next page)

(Table 5.1 continued)

(F) BOWMAN'S FIELD (or Twin Bridges Field)

Location: T10S, R10W, Section 1, NE 1/4
Area Studied: ?
Habitat(s): Farm Field
Elevation: 160-180 ft (49-55 m)
Distance to Coastline: 10.1 mi (16.4 km).

Also see Fig. 1.1 for approximate location. This field was adjacent to the south side of Highway 410 and is visible from it.

2/21/87. 1+ Am. Wigeon, 1+ Mallard.
3/7/87. 1+ Am. Wigeon.
3/9/87. No ducks.
1/15/90*. 2 Gadwall, 10 Am. Wigeon.
5/2/90 (0630 PST). 3 pairs of Wood Ducks, 1 pair of Mallards.
5/2/90 (1600 PST). 2 pairs of Wood Ducks.
8/19/90. No birds; dry.
2/14 & 15/91*. 1+ Am. Wigeon

* At Newport, minimum temperatures for Jan. 13-15 were 42-43 F (maxima of 47-52 F) and for Feb. 10-15 were 42-47 F (maxima of 51-60 F)(NCDC), so the presence of these birds was not correlated with freezing.

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