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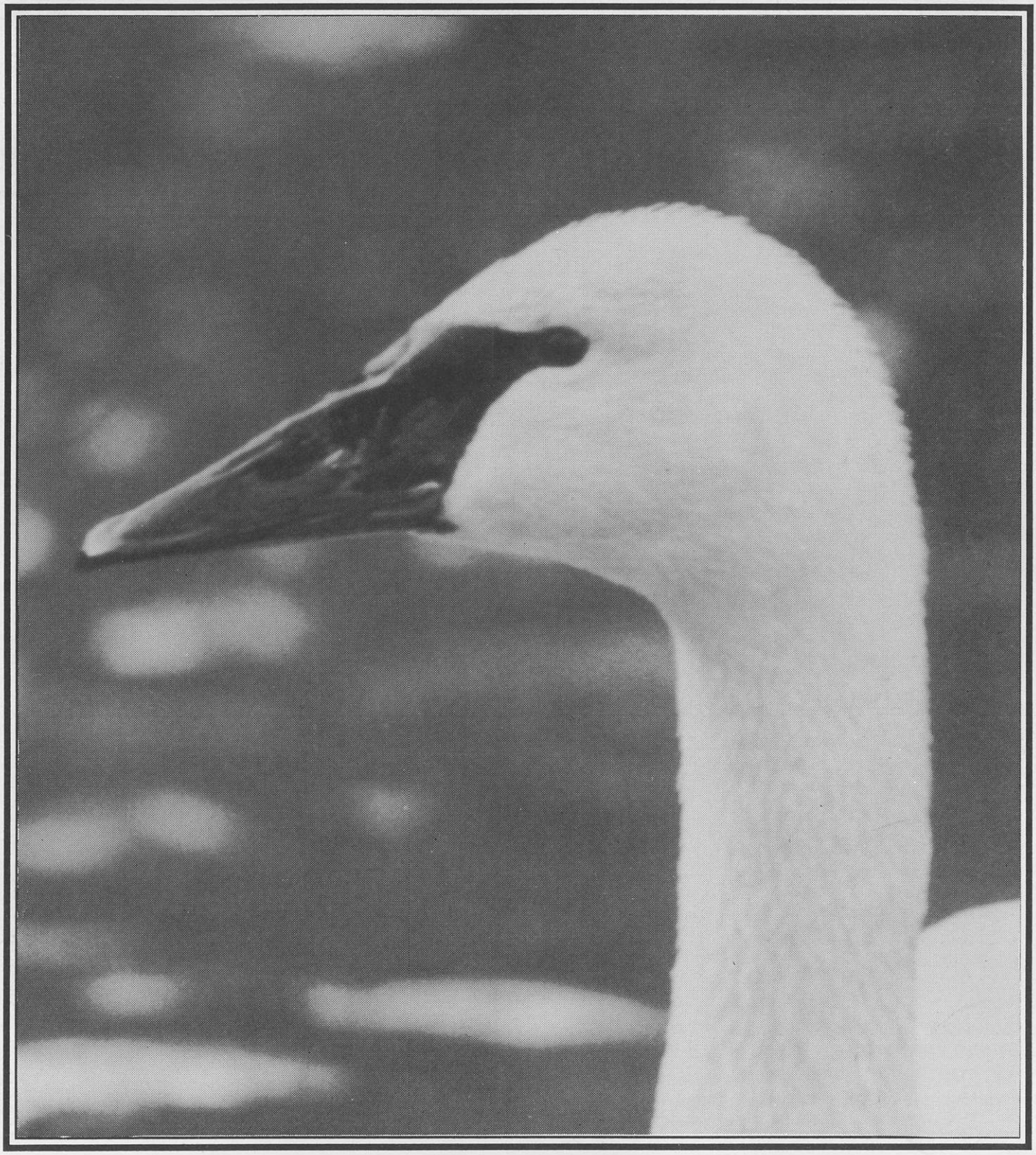

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GUIDELINES FOR SUBMISSION

Members are encouraged to submit articles, field trip reports, birding and botany notes, and book reviews with photographs or illustrations if possible. Photographs of natural history are appreciated along with documentation of location, species names and a date. Please label your submission with your name, address, and phone number and provide a title. We will accept and use copy in almost any **legible** form but we encourage submission of typed, double-spaced copy **or** an IBM compatible word processing file on any size diskette, plus printed output. Having copy submitted on diskette saves a lot of time and work for the publications group and we really appreciate the help. If you have an obscure or very old word processing program, call the Editor, **Warren Drinnan,** at 361-3543, or save the text in ASCII format. Blank diskettes may be obtained from the editor and we will return any of your own diskettes submitted. Photos and slides submitted may be picked up at the Field-Naturalist, 1241 Broad Street, or will be returned if a stamped, self-addressed envelope is included with the material.

VNHS MEMBERSHIP

For membership information and renewal, please contact Dodie Clark at 477-5158, or write to Membership Committee c/o The Victoria Natural History Society, Box 5220, Victoria, B.C., V8R 6N4.

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Contents

OUR COVER STORY

This issue features a report on a research project coordinated by Michael Carson with the assistance of several members of the Victoria Natural History Society. While it is longer than our typical magazine article it is an important addition to information on one of our most threatened habitats–freshwater wetlands.

The focus of the article is on the Trumpeter Swan, which has enjoyed a recent population comeback from a time when it was considered a "threatened" species. But the importance of wetlands goes beyond the requirement of swans. It is a critical habitat during all seasons for many species of waterfowl, shorebirds and others which reside in the shoreline vegetation. The profile of the Trumpeter Swan on our front cover was taken by Tim Zurowski when the birds stopped over at Courtland Flats a number of years back. According to Mike Carson: "Recent attempts to improve the drainage of this area have resulted in the arable fields being much drier than at neighbouring Hastings Flats . . ."

This may explain why, during the most recent survey, Trumpeter Swans were present only once at Courtland Flats and a signal of diminishing wetland habitat.

Natural History Presentations' Opening Show

By Bev Glover

The new season began with an excellent presentation by Dr. Alan McGugan. Dr. McGugan is a geologist specializing in stratigraphy and palaeotology. His life's work involves the examination of the stratified layers of rock created through geological time. He searches for macroscopic and microscopic fossils in the rock and then compares the formation and changes of earth itself with that of its changing life forms. A very fascinating and challenging career.

Dr. McGugan began with an easy to understand explanation of how rock and landforms are created throughout time via plate tectonics. He introduced the audience to the Geological era and periods and the life found during those times. From there he talked about work completed in the Rockies around the Peace River District. He gave entertaining accounts of the life and perils of a geologist working in the far north. All listeners will definitely have great respect for the skills of helicopter pilots from now on. The presentation's final segment was a film showing what life and work was like in the high country wilderness.

For VNHS members interested in the topic of September's presentation, Dr. McGugan recommends reading the following books: *The Book of Life,* by Stephen Jay Gould, Viking Press; and *The End of Evolution,* by Peter Ward, Bantam Books.

There is a Vancouver Island Palaeotological Society (VIPS) for members of the VNHS who are interested in fossils and the past life of Earth. For further information contact Bev Glover at 721-1476 for phone numbers of contacts with the VIPS. Also, Dr. McGugan is looking for people who may be able to donate or loan fossils for a display at the Duncan City Museum. More details are in this issue's Bulletin Board.

Thank you! Our thanks to Marilyn Lambert for donating the door prize at the September Natural History Presentation. And congratulations to the winner. We hope you had a great Zodiac trip.

Bev Glover is Director, Publicity, Victoria Natural History Society.

Gordon Devey

Gordon Devey, Treasurer of the *Victoria Natural History Society*, has now decided to pursue other activities. Gordon has held the position since 1989, maintaining the financial records and contributing to the management and direction of the Society. Under his stewardship as financial advisor, the holdings of the VHNS have been significantly improved. It was a job well done. We want to thank Gordon for his invaluable contributions and wish him well for the future.

Gordon's departure leaves open the position of Treasurer of the VNHS. The skills required include book keeping, preparation of annual financial statements, basic investment strategies and preparation of statutory reports and reports to the Board. Those with an interest in this position should call Gordon at 652-6879 or David Allinson, President of the VNHS, at 380-8233.

VNHS Field Trips

By Marilyn Lambert

September 10 started off our field trip season with an outing to Sidney Spit led by David Pearce. Though shorebirds were scarce we did have an interesting encounter with six American Pipits. Since then members have enjoyed outings to Uplands Park, thrashing the bushes searching for insects with Syd Cannings and to the Beechy Head Lookout to catch the annual spectacle of the Turkey Vulture migration with David Allinson and David Stirling. If you haven't been able to make it to any of these events we have plenty more in store for you. Come on out and enjoy the camaraderie with people of like minds and interests.

If you would like to explore a particular area or field of interest, let me know and I will arrange an outing. If you have expertise in a particular area and are willing to share your knowledge with others—let me know and I will put a group together—WE LOVE VOLUNTEERS!

Marilyn Lambert is Field Trip Coordinator for the Victoria Natural History Society. You can contact here at 477-5922

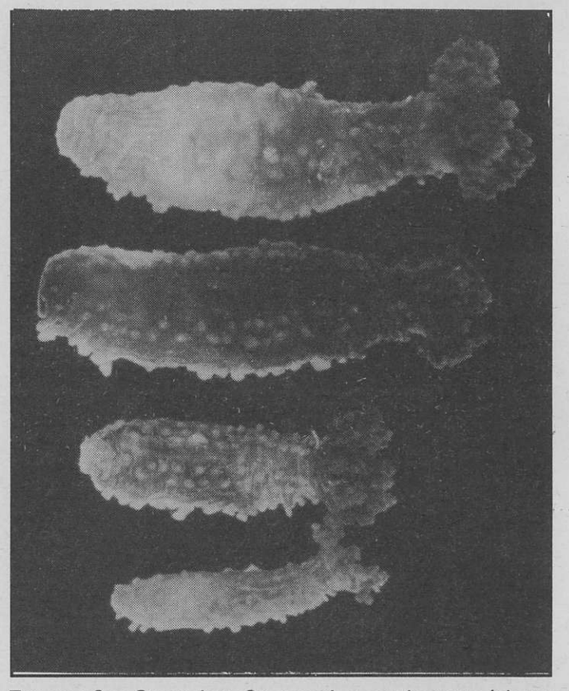
In the Clutches of a Brooder!

By Philip Lambert

I carefully lifted the body of the mother and reached underneath. Her babies were cold and wet but seemed quite happy. She clutched them between her body and the cold rock. Soon they would be venturing out on their own. Sounds like a warm domestic scene doesn't it? Except this is a marine invertebrate caring for its young—a 2 cm long Tar-Spot Sea Cucumber with an offspring about 0.2 cm long.

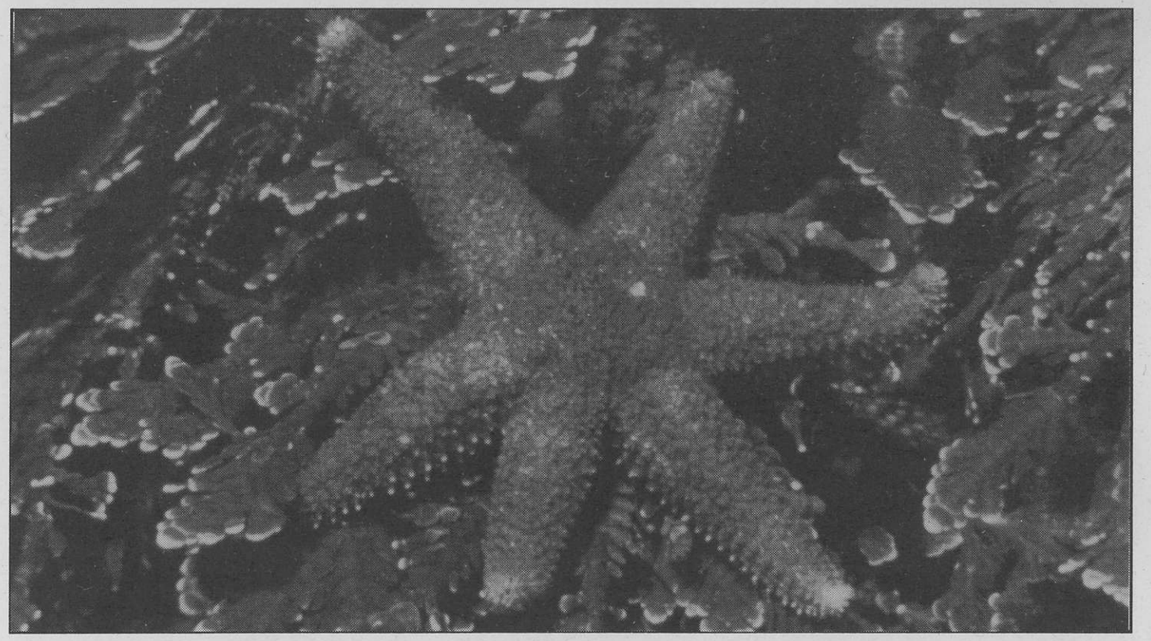
A cold, damp wind whistled down the neck of my rain gear as I crawled around on my hands and knees. I aimed my flashlight into the crevices amongst the glistening rocks of the seashore. My watch said 11:40 p.m. What was I doing here? In order to study the reproductive habits of an intertidal sea cucumber, when the tide is low, I go! Time waits for no man whose field work is governed by the tides.

The Tar-Spot Sea Cucumber *(Cucumaria pseudocurata)* lays its eggs in the middle of winter and broods them beneath her body. At this time of year good low tides occur only in the middle of the night; hence, this nighttime escapade. First, I looked for some California mussels. Then I probed amongst them in the hopes of finding some cucumbers clinging to the mussels or their byssus threads, the hairy strings they attach to rocks with. Just when I was about to give up hope, Eureka! A small cluster of sea cucumbers. One can often look for a while before finding a "family." Other species that disperse by planktonic larvae, such as barnacles, distribute themselves more evenly in the intertidal zone. But these cucumbers do not venture far from mother. That is why finding them is a bit of a hit and miss affair.

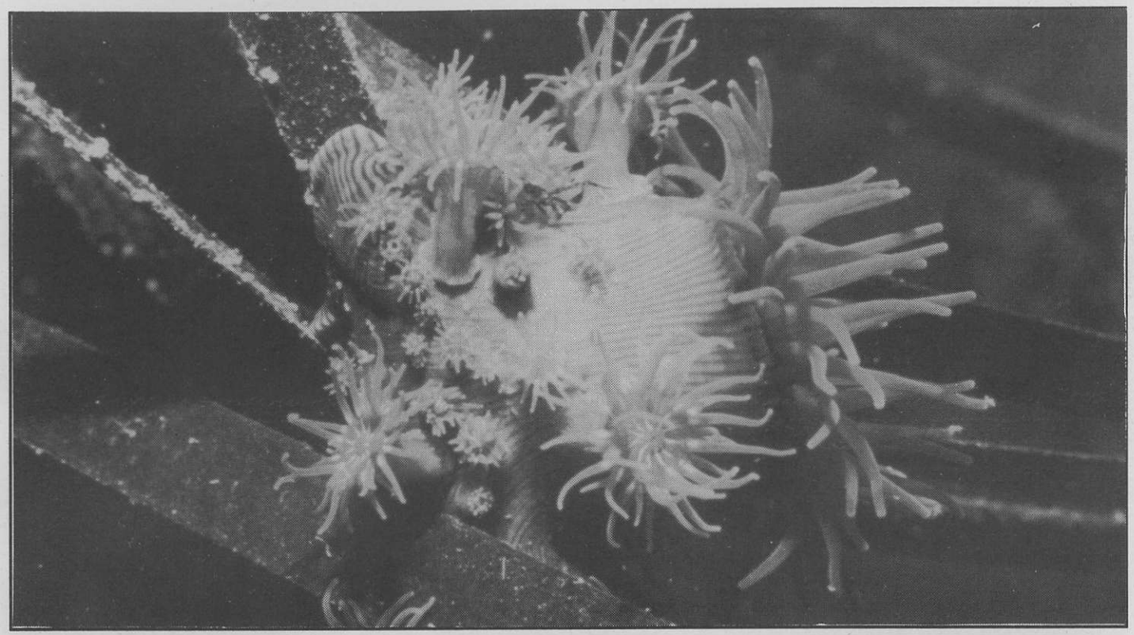


Tar-spot Sea Cucumber, *Cucumaria pseudocurata* (photo: Royal B.C. Museum.)

In just about every invertebrate group, brooding of the young has evolved as a strategy for survival. Usually,

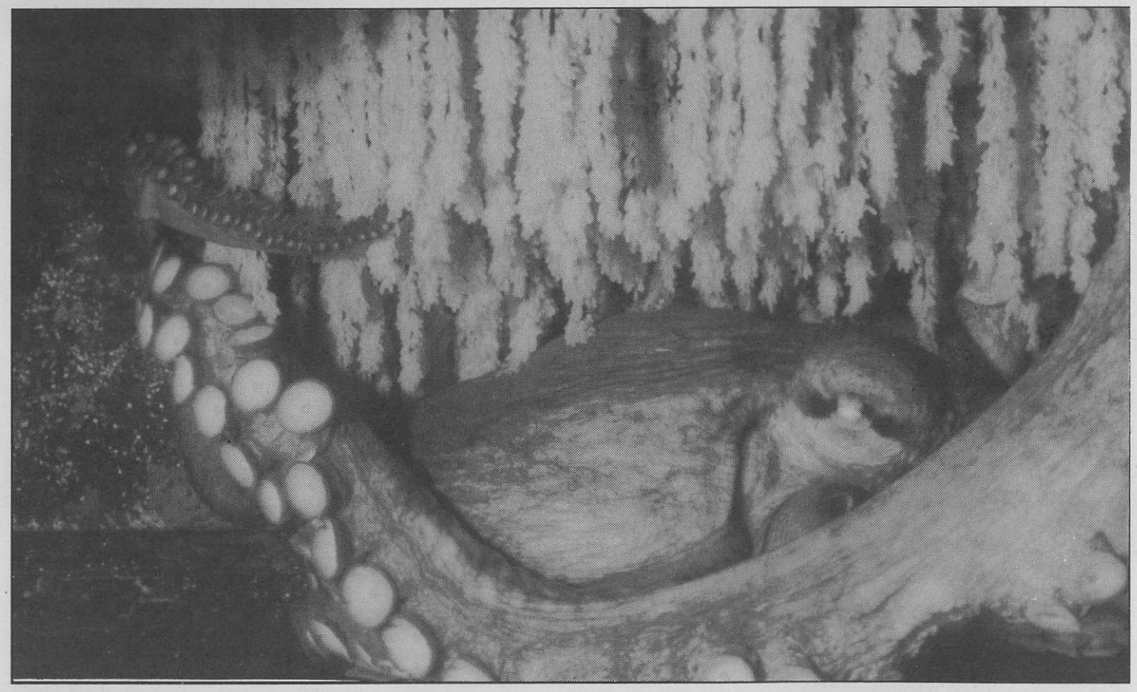


Six-armed Sea Star, *Leptasterias hexactis* (photo: Royal B.C. Museum).



Sea Anemone, *Epiactis prolifera,* Sidney, (photo: Royal B.C. Museum.)

invertebrates simply shed their eggs and sperm into the water. Fertilization takes place by chance. The female produces thousands of tiny eggs in the hope that a few will survive and develop into breeding adults. However, a small number of invertebrates, like this sea cucumber, invest their energies into producing fewer yolk-filled eggs. Then they invest still more time and energy in parental care. The parent retains the developing embryos in some kind of



Octopus with eggs (photo: Royal B.C. Museum).

cavity or beneath its body, often sacrificing feeding during this critical time.

After an incubation period the juveniles emerge to fend for themselves. Notice that I used the term "parent." Invertebrates display every combination of sexual orientation! Some, like barnacles, are hermaphrodites—with both sexes in the same individual. Some begin life as a male and then become female—sometimes in the same season. The Native Oyster, *Ostrea lurida,* does this. The Native Oyster by the way, is not the large Pacific Oyster, of commercial use. It is a tiny species, only 3 or 4 cm long, that once flourished in Georgia Strait and Puget Sound but has since declined in numbers. The male sperm fertilize the eggs in the mantle cavity. The young develop here until late in the larval phase before they are expelled to fend for themselves.

The Six-armed Sea Star *(Leptasterias hexactis),* another small species, broods a mass of eggs beneath her body for several months. A tiny hermaphroditic clam *(Lasaea subviridis)* that clings to mussels and tufts of sea weed also broods its babies until they are about 1/2 mm long. Even sea anemones show parental care. The Brooding Sea Anemone *(Epiactis prolifera)* attaches its embryos around the base of the column. When they reach about a centimetre in diameter, they slide away and take up residence nearby. This accounts for the pastel carpets of sea anemones coating some rocks. What do these brooders have in common? The examples I have given are all small species. This is not a hard and fast rule. There are some notable exceptions such as the Pacific Giant Octopus that cares for her eggs and sacrifices herself for her offspring. But in general, it is the small-bodied species that have opted for brooding.

Furthermore, the number of brooding species increases toward polar regions. This may have something to do with the harsher, more precarious conditions at the poles. Here the reproductive season is short, with intense competition and predation. With a relatively meagre supply of nutrients small individuals do not have the resources to produce huge numbers of eggs for broadcast reproduction. They produce quality, not quantity.

So an animal does not have to be warm blooded to be warm-hearted and caring! To be successful, many species besides birds and mammals have found that time invested in caring for their offspring pays off in the long run.

Philip Lambert is the Head of Invertebrate Unit at the Royal B.C. Museum. If you have any questions on marine invertebrates you can telephone him at the museum at 387-6513 or fax him at 387-5360.

Welcome New Members

August 5 **Wayne and Debbie Maloff,**
of Kings Road.

September 3 **Jim Craven and Suzanne Baden,**
of Sooke: enjoy all aspects of natural gardens.

September 9 **Jamie Masters,**
of Beaver Road: interested in exploring southern Vancouver Island and beaver activity.

September 13 **Stephanie Miller,**
of Craigmillar Avenue: is interested in birds.

Joan Newton,
of Granite Street:
interests include flowers, birds and plants.

September 27 **Peter Press,**
of Songhees Road: enjoys birding and hiking.

September 28 **Richard, Karen and Sam Barnett,**
of Walnut Street: interests include canoeing, hiking and birding.

Colleen and John Davis,
of Newport Avenue: enjoy birds and marine life.

Karen Toms and David Wright,
of Shawnigan Lake: interested in birds and flora.

Judith and William Kay,
of Cadboro Bay Road: enjoy birding.

Robert Hadley,
of West Saanich Road: interests include waterfowl, raptors, game birds and shore birds.

Bev Bullen,
of Cedar Hill X Road: enjoys birds, flowers, plants, archaeology and history.

Phillip Judd,
of Harriet Road:
enjoys hiking and birding.

Overwintering Habitats of Trumpeter Swans in the Victoria Area

By Michael Carson

The article that follows documents the results of the Trumpeter Swan Survey undertaken by the Society during the winter of 1993-1994.

BACKGROUND

The stimulus for this survey originated in discussions in the Parks and Conservation Committee regarding the importance of the Martindale Valley in Central Saanich as habitat for overwintering waterfowl. In particular, opinions had been expressed that numbers of Trumpeter Swans (TRUS) in 1991 and 1992 had been significantly lower than in 1990, and that this decline might be related to less flooding of fields in the valley arising from cleaning out of the master ditch.

Special concern seems to exist regarding the availability of suitable habitat for these swans given their near-extinction in the 1930s and the fact that they are very much a "West Coast species." Most of the world population breeds in Alaska and overwinters in British Columbia. In particular, Vancouver Island accounts for a substantial proportion of these overwintering birds (Table 1), especially along the eastern lowlands of the island from Comox to Victoria. The dramatic rise in Christmas Bird Count numbers of the species in Victoria since 1975 parallels the increased size of the Alaskan breeding population and the overwintering population on Vancouver Island as a whole during the same period.

With this perspective it seemed appropriate to gather as much data as possible in an attempt to answer various questions that had been raised in these discussions. These included:

- How important is the Martindale Valley compared to other parts of the Saanich Peninsula as an overwintering area for Trumpeter Swans?
- What factors seem to determine the abundance of Trumpeter Swans in different habitats in the Peninsula during the course of the winter? In particular, how important is the extent of flooding and different types of food source in controlling this distribution?

Some data on Trumpeter Swan abundance are available from the "bird-carding" program of the Royal BC Museum and from the Christmas Bird Counts (CBC) but these are somewhat limited in terms of addressing the questions posed above.

The Victoria CBC data for 1980-1993 are summarized in Table 2. Though useful to some extent, they must be used with caution as indicators either of habitat importance or of species abundance for several reasons. In the first place, the numbers refer to birds both in flight and on the ground, without differentiation. As a result, while many CBC subareas may actually report Trumpeter Swans, in many cases these sub-area totals simply refer to birds in flight and not to birds actually using habitat in the area listed.

Trumpeter Swan (photo: Tim Zurowski).

TABLE 1 TRUMPETER SWAN NUMBERS 1968-1994

Winter	1 Alaska	2 Vancouver Island	3 Comox South	4 CBC Duncan	5 Victoria CBC	6 Martindale CBC	7 Martindale "high"	8 Nov-Dec mm
1993 -94				527	171	66	220	150
1992 -93				677	185	113	187	191
1991 -92				414	121	74	127	286
1990 -91	13337			465	210	122	198	448
1989 -90				320	90	85	110	207
1988 -89		2864		221	62	62	82	278
1987 -88				163	36	29	61	247
1986 -87				191	64	12	60	
1985 -86	9459			185	32	27	28	
1984 -85				112	28	0		
1983 -84				66	49	17		
1982 -83				52	2	2		
1981 -82		1685		43	15	0		
1980 -81	7696		750	28	18	0		
1979 -80			600	13	0	0		
1978 -79			450	21	9	0		
1977 -78		1177		15	6	0		
1976 -77			350	1	0	0		
1975 -76	4170		300	9	0	0		
1974 -75			250	7				
1973 -74				2				
1972 -73				2				
1971 -72		906		4				
1970 -71				5				
1969 -70								
1968 -69	2847							

Legend

1 Alaska - late summer survey
2 Vancouver Island - wintering population
3 East Vancouver Is. south of Campbell River district wintering population
4 Duncan Christmas Bird Count
5 Victoria Christmas Bird Count
6 Martindale Flats Christmas Bird Count
7 Martindale Flats winter high
8 Precipitation in Nov-Dec at Victoria Airport

Sources

1,2,3 Birds of British Columbia, Volume 1 and McKelvey et al., 1991
4 Sid and Emily Watts, 1993, pers. comm.
5,6 The Victoria Naturalist
6,7 Fraser and Ramsay, 1991
7 Jerry Anderson, 1993, pers. comm.

Area=	1	4	16	17	18	19		20		
	TCF-MabF	HasF-CourF	SL	BlV-PF	RB-BEL	QB VF	Sum	MarF	Total	%MarF
1993	72				17	2	105	66	171	39
1992	53	1		1	7	10	72	113	185	61
1991	30	11		2	1	1	47	74	121	61
1990	16	36	6	18	2	10	88	122	210	58
1989		5					5	85	90	94
1988								62	62	100
1987		3					7	29	36	81
1986	16	10		3		23	52	12	64	19
1985		2				1	5	27	32	84
1984	22					2	28		28	0
1983	13			2	4	13	32	17	49	35
1982							0	2	2	100
1981	15						15		15	0
1980	13				2	3	18		18	0

Sum denotes total sightings in CBC areas 1-19
Total denotes total Victoria area (Areas 1-20)
%MarF is number in Martindale as % of Victoria total

TCF-MabF	Tod Creek Flats and Maber Flats
HasF-Cour	Hasting Flats and Courtland Flats
SL	Swan Lake
BlV-PF	Blenkinsop Valley and Panama Flats
RB-BEL	Rithet's Bog and Beaver-Elk Lakes
QB-VF	Quick's Bottom and Viaduct Flats
MarF	Martindale Flats

TABLE 2

NUMBER OF TRUMPETER SWANS IN VICTORIA
CHRISTMAS BIRD COUNTS 1980-1993 BY AREAS

A second point is that this mobility of the bird population casts serious doubt on the accuracy of some of the figures, given that the same birds may be counted on the ground in one area, in flight in another area, and then counted again in a third area on the ground after landing. This was certainly evident in the 1993 CBC, especially between Tod Creek Flats and Martindale via Bear Hill. Alan McLeod (1993, pers. comm.), the compiler for Martindale CBC, was very aware of the problem and admits that it is by no means certain that the correct "adjustment" was made to eliminate double-counting. For the record, the sum of the Tod Creek Flats and Martindale Trumpeter Swan counts in the 1993 CBC was 138; the overall Saanich Peninsula count made in the present survey one week before the CBC was only 88, and two days after the CBC it was still only 102.

The "bird-sighting" card program of the Museum is potentially more informative because sightings are reported throughout the winter. The problem here is that some areas may

Viaduct Flats, October 1994 (photo: Michael Carson).

go uninspected for weeks at a time, and in some cases there may simply be no reports at all in some years. The data for 1986-92 are summarized in Table 3. It is unclear whether the gaps are due to absence of Trumpeter Swans or, as seems more likely, due simply to the absence of reports.

Given these problems of relying solely on existing data, it was thought that a pilot single-winter study, based on more detailed inventory work, might be useful.

THE SURVEY

The approach used was to undertake a systematic survey once a week of all areas thought suitable for Trumpeter Swans. This was done on Sunday mornings and included the following areas: Rithet's Bog, Panama Flats, Hastings and Courtland Flats, Quick's Bottom and Viaduct Flats, Tod Creek Flats, Maber Flats, Martindale Valley, and the Blenkinsop Valley. The underlined areas were monitored by independent observers; the others were done on a traverse lasting about an hour by a single observer. On some weekends, to reduce the possibility of double-counting at Tod Creek Flats and Martindale, synchronous counts were done in the two areas by two observers but this was not possible as a general rule. The locations are shown in Figure 1.

In addition to this weekly survey, reports of Trumpeter Swans anywhere on the Saanich Peninsula were solicited from the birding community in an attempt to prevent some areas being overlooked and to provide additional data on numbers.

These mid-week reports were especially useful in providing a check on the number of Tundra Swans mixed in with the Trumpeters. During the main weekly traverse, no attempt was made to separate the two types of native swan, given the importance of keeping the traverse as short as possible to avoid double-countings. The high count for Tundra Swans appears to have been three (2 adults and 1 immature) and two were noted in most weeks from December through February.

The survey began in early November and ended in early April. In addition to monitoring numbers, attention was also directed to the use being made of the habitat by the swans, the exact type of habitat (wet fields, wadable water, swimming-depth water (for swans), and pasture), and the amount of land covered by swimming-depth water as it varied during the winter.

The data also provide some indication of the gradual increase in Trumpeter Swan numbers during the course of the winter and their decline towards spring, though the monitoring of absolute weekly totals was not the prime purpose of the survey. Any survey for which total numbers is the primary goal would have to take even greater care than done here to avoid double-counting.

Only one neck-collared swan was seen during the winter. This was 71AK, a locally produced female from the Tetlin Hills, near Tok, Alaska, banded by staff of the Tetlin National Wildlife Refuge in September 1991 (McKelvey, 1994, pers. comm.).

SUMMARY OF RESULTS

In interpreting the data, it should be noted that 1993-94 was a very dry winter. November through January was far drier than normal, though February was slightly wetter than normal as a result of rain between the 11th and 17th and again in the last three days of the month. Waterlogging of fields was at a maximum at the start of March. The area-by-area summary below is given in order of increasing amounts of flooding. A benchmark used for this purpose is whether more than an acre of land was flooded with swimming-depth water; this is referred to as "extensive" flooding below.

Blenkinsop Valley—No Trumpeter Swans were reported in the valley at any time. This is perhaps not surprising given the dry winter and the fact that, of all the areas monitored in the survey, the Blenkinsop Valley had the least amount of waterlogged land. In fact, apart from small patches being wet

for a few weeks after the end-of-February rain (and lasting into mid-March), the arable fields were essentially dry throughout the winter.

Courtland Flats—Recent attempts to improve the drainage of this area have resulted in the arable fields being much drier than at neighbouring Hastings Flats. No surface water was noticed until the end of December and extensive swimming-depth water did not occur until the heavy rains of the last week of February, which flooded the entire area. The only time Trumpeter Swans were noted in this area was on March 6, with a flock of five which had spent the previous few days at Quick's Bottom.

Panama Flats—The arable fields of this area became flooded over much of their extent relatively early (from December 4th to 14th) but then gradually dried out, almost completely, until just before the end-of-February rains, following which more than 50% of the large area was under water. No Trumpeter Swans were noted in this area at any time during the winter. The only significant CBC record for this area is for December 1990: a very wet winter with an all-time high CBC count for Trumpeter Swans. Other CBC surveys for the area show only a few Trumpeter Swans which may well have been birds in flight. Perhaps the tendency for this area not to flood as frequently as some of the other areas is the reason for its lack of usage by swans, though its semi-urban setting may also be relevant.

Hastings Flats. Extensive flooding of the arable fields in this area did not begin until mid-December but waterlogging lasted much longer than at Panama Flats, through until early February. Wet patches remained in the fields until swollen by the heavy rains at the end of that month, producing waterlogging over about 90% of the area. No swans were noted on any occasion. The highest CBC count for this area was 36 during the 1990 all-time high. It is difficult to believe that the absence of swans this winter is related to slightly less flooding of the fields. The usage of this area by Trumpeter Swans in 1990 may have been due simply to the large numbers of swans on the Saanich Peninsula at that time, about twice the number compared to mid-December, 1993.

Quick's Bottom. Small areas of waterlogging were evident here at the beginning of November and persisted through the winter, but extensive flooding did not occur until the end-of-February rains. Even then, flooding seems to have been less than normal and is possibly due to a debris dam on Viaduct Creek which seems to have been restricting flow in the creek and reducing the amount of overbank spillage of water into Quick's Bottom (Brix, 1994, pers. comm.). A family of five Trumpeter Swans was noted briefly on December 19 and five more (three adults) were reported during the first week of March. As noted in the bird-sighting records (Table 3), occurrence of Trumpeter Swans in this area appears to be restricted to late-winter and spring. It is unclear whether this is simply due to new growth in the aquatic vegetation providing an attraction for overwintering birds or whether it represents an influx of northward-migrating birds from Washington and Oregon.

	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Martindale	5	67	127	187	136	178	
Maber Flats				35		39	
Tod Ck Flats		2	187	60			
Quick's Bottom					80	46	85
Courtland Fts		4			65	33	
Elk Lake					78		

TABLE 3

HIGHEST SWAN COUNT BY LOCATION AND MONTH
BASED ON BIRD-SIGHTING CARD PROGRAM 1986-93
PRIOR TO 1993-94 SURVEY

Source: J. Anderson (1993, pers. comm.)
Dec figure for Tod Ck Flats from D. Barnes (1993, pers. comm.)

The April report for Quick's Bottom is suspect: see text.

Maber Flats. Extensive flooding of this arable area began as early as December 10 continuing through until the end of January. Only small waterlogged areas occurred in early February but extensive flooding was apparent after the mid-February rains and continued until the last week of March. No swans were reported during the winter. The bird-sighting records (Table 3) indicate that the area has been used by relatively large numbers of swans in the recent past, possibly as a temporary feeding area for birds shuttling between Tod Creek Flats and Martindale. The last Trumpeter Swan records in this area were for March, 1991. It is not clear why the area has been shunned by swans in the last two or three years but this may be related to farming practice. It is believed that farming was abandoned in 1991-92 while last year the area was used for corn but not for root crops. Without a residue of root crops, there is perhaps little to attract swans to the area now.

Tod Creek Flats. This area comprises three fields, two of which grew potatoes and the other corn during the previous summer. Most of the field area was waterlogged by December 10 and stayed that way throughout the winter, apart from a 10-day period of patchy flooding in late December. Shrinkage of the waterlogged area began during the second week of March but much of the field area remained flooded into early May. Swans were first noted on December 3 in patches of wet field prior to the main period of flooding. The area remained an attraction for Trumpeter Swans until the end of January with numbers often exceeding 100 (Figure 2). After this time there were long periods with no swans evident during the daytime, although apparently the area remained an important site for overnight roosting. During the early winter there was considerable movement of swans between here and Martindale, flying just north of Bear Hill. The marked decline in swans at the end of January coincided with a mild spell of weather in which new growth of pasture grasses was quite evident elsewhere in the region. Most of the swans from this area appeared to be spending their daylight hours on such pasture in the Martindale Valley.

Martindale Valley. By historical standards, flooding was not really widespread at any time of the winter in this area, though at its peak (at the start of March) a very large arable area was under water. The sheer size of the valley is such, however, that even before that time, although only a small portion was waterlogged, this still represented the largest area of winter flooding in the Victoria region. Extensive flooding began, as at Tod Creek Flats, on December 10 and lasted throughout the winter until the second week of March, at which time the berms separating the fields from the main ditch appeared to have been breached to allow drainage. Because of the ban on potato farming in this part

	Comox	Nanaimo	Duncan	Victoria	Island	Ladner	Total
1993			527	171			
1992	1098	109	677	185	2069	423	2492
1991	415	159	414	121	1109	325	1434
1990	715	176	465	210	1566	431	1997
1989	440	164	320	90	1014	282	1296
1988	204	186	221	62	673	358	1031
1987	724	326	163	36	1249	57	1306
1986	629	119	191	64	1003	269	1272
1985	574		185	32			
1984			112	28			
1983	508		66	49			
1982	424		52	2			
1981			43	15			
1980			28	18			

Island is sum of Comox, Nanaimo, Duncan and Victoria

Total is sum of Island and Ladner

TABLE 4

CHRISTMAS BIRD COUNT DATA FOR TRUMPETER SWANS
AT SELECTED CBC SITES IN BRITISH COLUMBIA

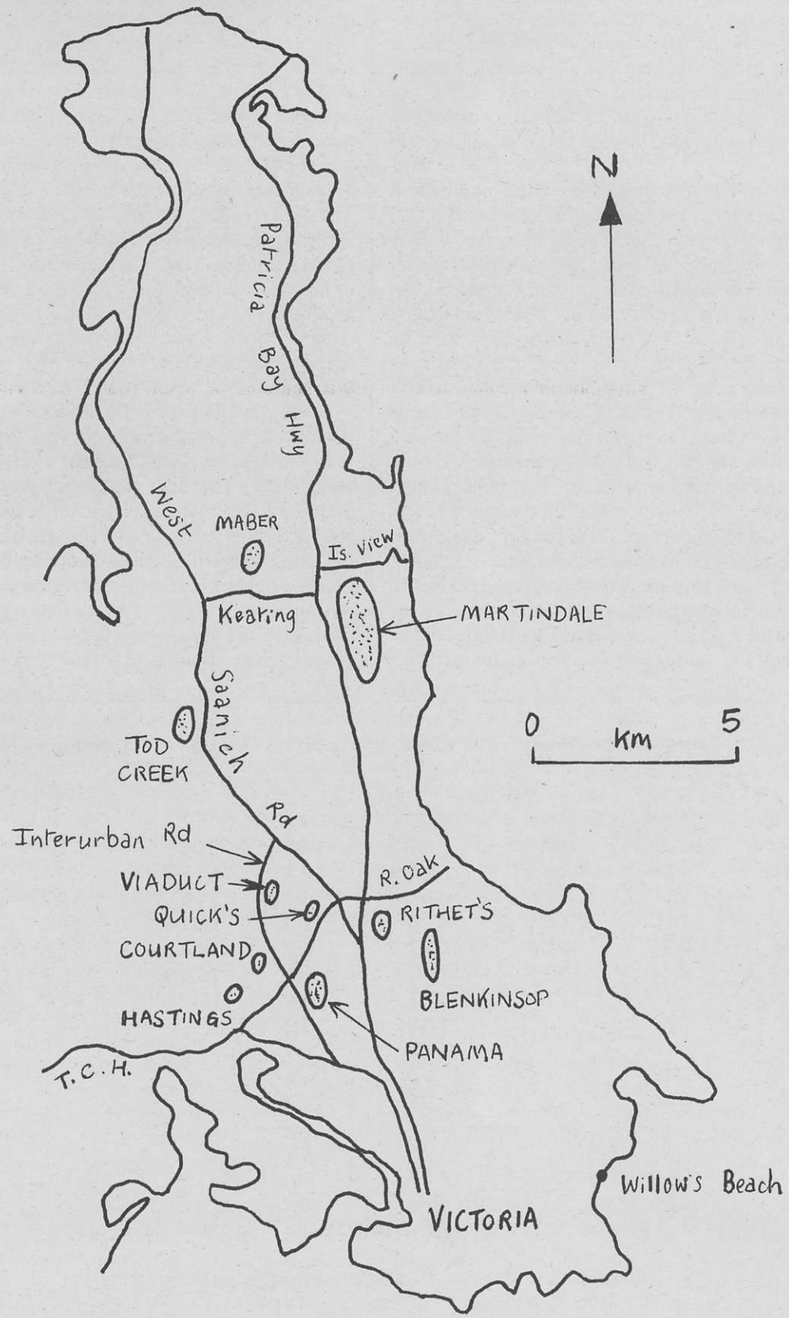


FIGURE 1

LOCATION OF AREAS EXAMINED IN TRUMPETER SWAN SURVEY

Courtland Flats, prior to improving drainage for agriculture (photo: Tim Zurowski).

Creek Flats and the shift to pasture-feeding in Martindale. It is not clear why swan numbers here were so much lower than at Tod Creek Flats but it may simply reflect the greater distance from Martindale. However, waterfowl regularly fly between here and the Martindale Valley during the winter. During most of December and January, at least, the flooded fields at Rithet's Bog were a significant overnight roosting area for more than 300 Canada Geese. Perhaps sheer congestion at night in this small area was a further deterrent to large swan numbers.

Viaduct Flats. While Rithet's Bog was the first area to flood with winter rains (and the last to be drained), Viaduct Flats was already flooded through the summer and autumn of 1993 continuing as a lake through the winter and spring. In previous years the area was, like most of the other areas just described, one of alternating summer crop production and winter flooding. However, no farming on Viaduct Flats was undertaken in 1993, the outlet channel (Viaduct Creek) was not cleared out, and an organic debris dam on this channel resulted in the unusually high water through last autumn. In previous years, this channel was maintained in good condition to allow springtime drainage prior to cultivation. No swans were seen on the ground in this area at any time of the survey. The lake is shallow (generally less than 1 metre) and it seems unlikely that it would have been too deep for regular feeding by swans. Perhaps the main reason for the absence of swans was insufficient food supply there, given the lack of root crop residues from the previous summer.

Importance of the Martindale Valley

The overwhelming importance of the Martindale Valley as overwintering habitat for native swans is clearly evident from the results of this survey. In part this seems to be because other large areas, such as the Blenkinsop Valley and Panama Flats, show only limited amounts of waterlogging during drier winters of the Saanich Peninsula, most of the root crops grown in the summer are parsnips and carrots.

Swans were first noted in the Martindale Valley on November 7. Numbers gradually built up to a peak in the 150s in mid-January. A report of 214 swans (including 2 Tundra Swans) on January 14 (Figure 2) may possibly have involved some double-counting because of movement within the valley. Numbers decreased to less than a 100 during late January but then exceeded 200 on many days through February, being bolstered, as noted earlier, by the daytime influx from Tod Creek Flats. A substantial decline in numbers was evident during the second week of March, after which time no swans were seen except for a single pair towards the end of the month.

Prior to mid-January, swans appeared to spend almost as much time paddling and swimming in waterlogged crop fields as roosting and eating in dry pasture areas. From late January on, virtually all swans were found in pasture areas, even though the extent of flooding increased during the winter. Presumably their palate for fresh grass growth is stronger than for root crop residues, or possibly supply of the latter had become less easily available. The favourite pasture areas were the "Dairy" field south of the L-reservoir, especially during the early winter, and the field north of the Farmer's Market on Island View Road, primarily during late winter. A few swans (usually less than 10) were also noted in the field north of Hunt Road at Sayward Road during late winter.

Rithet's Bog. This area was the first to flood in winter rains, with most of the three potato fields being covered with water by the end of November and remaining that way until mid-May, at which time field ditches were pumped dry. Swans were first noted on December 16. Small numbers, in the range two to nine, were found on most days between then and January 22, the date of the last sightings. The departure of swans from the area coincided with the marked decline in numbers at Tod

Trumpeter Swans (photo: Tim Zurowski).

such as that of 1993-94. But, clearly, this is only part of the story: waterlogged areas such as Hastings Flats, Maber Flats and Viaduct Flats attracted no swans either. In the latter two cases this may have been due to lack of food supply in the absence of root crop production.

The importance of the Martindale Valley to overwintering swans seems to stem from a number of points: it is an extensive area with large expanses of flooded fields even in a drier winter; there is a good supply of root crop residue as food during winter provided that fields do not become frozen; it is close to Tod Creek Flats which provide another large area of waterlogged cropped fields; and there is an extensive area of pasture that provides fresh grass growth during late winter. It may be that it is the combination of these factors that is important. Other areas certainly provide abundant pasture and in the late winter there is some dispersal of swans to these other pastures. Hagan Creek Valley was noted by Fraser and Ramsay (1991) as one such area but no swans were seen there this winter. A few were found, however, in the pasture south of Mount Newton Cross Road, east of East Saanich Road in early-mid March.

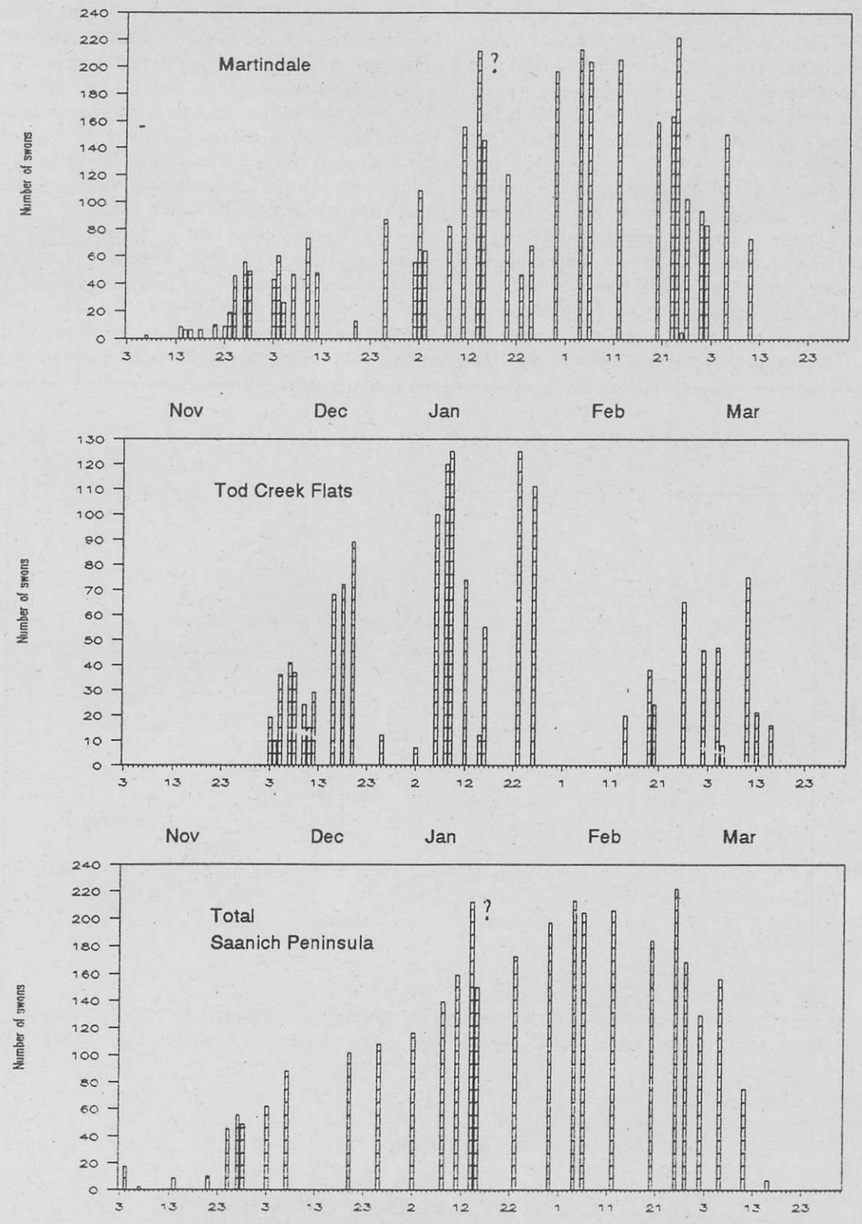
There are probably few other areas in the Saanich Peninsula that provide this combination of winter-flooded fields, root-crop residue and pasture fields, on the scale provided by the Martindale Valley. One area that is comparable, but on a smaller scale, is Hastings Flats, flanked on the east side by pasture slopes. It was often the location of daytime flocks of Canada Geese, using both the waterlogged fields and pasture slopes, but for some reason it was not used by swans. Other areas with a similar setting include Viaduct Flats and Quick's Bottom, though in the latter case the old fields, not farmed for more than 15 years now, have become overgrown with tall grasses. No swans were seen in the adjacent pastures in either area this spring.

The vast extent of Martindale Flats, compared to other farmland areas on the Peninsula, may attract Trumpeter Swans for reasons besides simply the abundance of food. The large area also provides an important element of safety: intruders such as dogs and people can be detected at a great distance, allowing escape to alternative sites in the area. The lack of this kind of buffer zone may be an important factor in discouraging swans, and other waterfowl, from using habitat that is, in other respects, perfectly suitable but located within the urban area.

The attraction of Martindale for Trumpeter Swans poses certain problems of land management. One local dairy farmer, at least, finds the grazing of late-winter and spring pastures by swans and geese detrimental to his use of the field for dairy cattle later in the year and apparently has resorted to the use of flares to try to move them out of the field. A similar problem was experienced in the Comox Valley where swan numbers are even larger. Arrangements were made there, under the guidance of the Canadian Wildlife Service and Ducks Unlimited, to set aside specific areas of lowland planted with winter cover crops to lure the swans away from the pastures. (See newsletters of the Comox Valley Waterfowl Management

FIGURE 2 SUMMARY OF 1993-94 TRUMPETER SWAN NUMBERS

Numbers are the highest reported on each day. Total is often less than sum of Martindale and Tod Ck. because of inter-area movement.



Project.) The strategy seems to have worked and should perhaps be considered for the Martindale Valley if it is to be retained as overwintering habitat for swans.

Year-to-year changes in Trumpeter Swan abundance

As noted in the introduction, one of the issues that prompted this study was the fluctuation in numbers of Trumpeter Swans overwintering in the last few years (Table 1) and the possibility that this might be related to increased drainage of winter-flooded fields, especially in the Martindale Valley. The reported December high count for Martindale in 1991 was substantially less than the peak in the previous year. Some birders have commented that Trumpeter Swan numbers in the winter of 1992/93 were also lower than expected and have attributed this to dry fields.

Anecdotal evidence and opinions exist in plenty on this topic but attempting to determine the true causes of these changes is no simple matter. To some extent, overwintering numbers in B.C. as a whole are determined by breeding success in the previous summer. In addition, although it is probably true that particular swan families have favoured overwintering areas, just how far south some of these swans migrate may be expected to depend in part on the severity of the winter on the mainland and on the northern part of the island. Thus, before examining local issues that might affect Trumpeter Swan abundance in the Victoria area, it is necessary to compare year-to-year changes here with year-to-year changes elsewhere in the province.

The Trumpeter Swan CBC totals for selected stations in B.C. for 1986-1993 are summarized in Table 4. It is apparent from this table that the year-to-year changes noted for Victoria are largely paralleled in all these other areas as well, especially in Duncan (Figure 3). The only area in the table which shows an anomalous time trend is Nanaimo, in which CBC numbers have been gradually declining from a peak in 1987, apart from a small increase in 1990. The reasons for this decline in Nanaimo appear to be related to a change in feeding habits over the last ten years or so (van Kerkoerle, 1994, pers. comm.). In the past, most swans fed in the marshy areas of the Nanaimo estuary; now swans feed primarily in pasture fields, most of which are outside the CBC count circle.

Table 4 indicates that numbers in 1991 were down in all areas compared to 1990. This may be related to below-average breeding success or juvenile survival. The percentage juveniles in the 1991/92 Pacific over-wintering population is reported by Fowler (1992) as 17%, compared to the 1981-86 average of 23% for Vancouver Island given

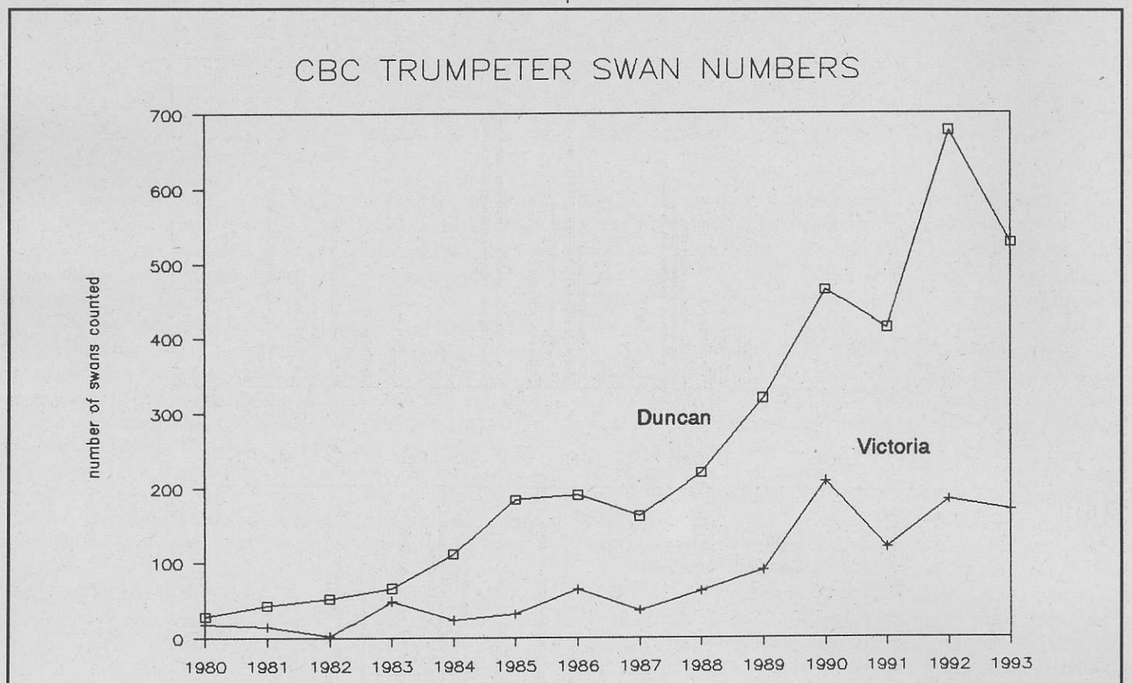
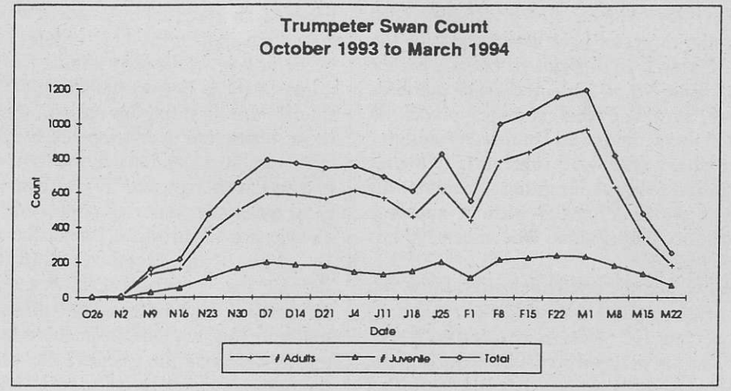
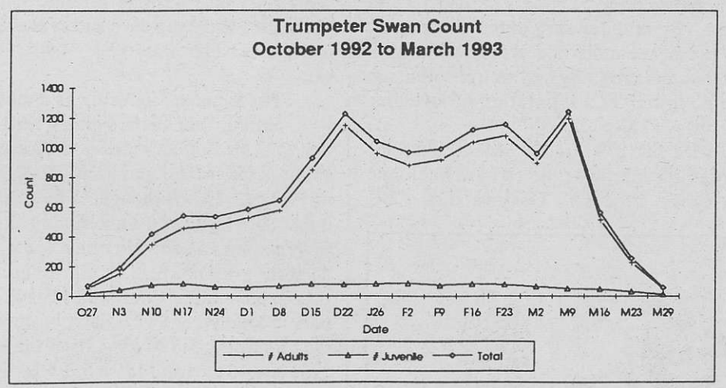


FIGURE 3

COMPARISON OF CBC TRENDS AT DUNCAN AND VICTORIA





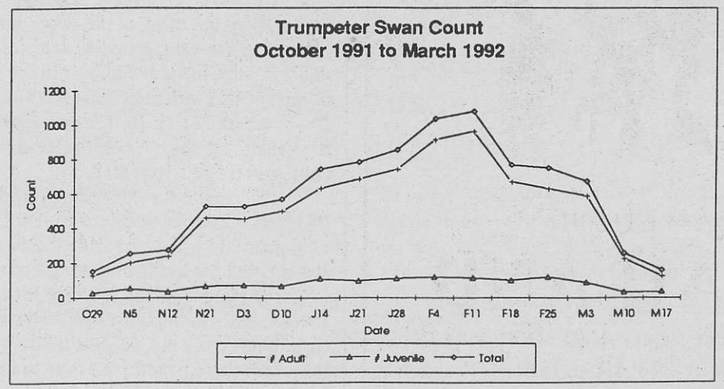


FIGURE 4 WEEKLY PATTERN OF TRUMPETER SWAN NUMBERS IN COMOX VALLEY, 1991-1994 (from Comox Valley Waterfowl Management Project Newsletter, July 1994, V. 3. No. 2)

by Campbell et al. (1990). With this perspective then, it is difficult to attribute the lower numbers in Victoria in 1991 to anything that depends on local conditions

Turning to the winter of 1992/93, the Victoria CBC figure for December 1992 is only slightly less than the peak figure two years earlier. This is not consistent with opinions previously noted but without actual data for the rest of the 1992-93 winter it is difficult to know whether these impressions of lower-than-expected swan numbers are valid. It is true, however, that at other places on Vancouver Island, notably Comox and Duncan, Trumpeter Swan totals in December, 1992 were substantially higher than those for December, 1990. Attempting to explain why this did not also happen in Victoria, without accurate knowledge on local field conditions in December 1992, is difficult.

The winter of 1993/94 appears to be the first for which data on age-status of Trumpeter Swans in the local area are available. The percentage of swans covered with grey juvenile plumage was surprisingly variable during the course of the winter, especially in the early winter, with a range of 22% to 35%, based on total counts in the Victoria area of 70-120 swans. By mid-January and February, as numbers increased, the percentage had stabilized at 25% to 27% of the 150-200 swans seen. By late winter, plumage contrasts seemed to be fading and separation of juveniles from adults was not always easy.

In comparison with the 23% figure noted above for 1981-86, the 1993 breeding season seems to have been one of slightly above-average success. Despite this, CBC Trumpeter Swan totals were down in Victoria as well as at Duncan (Figure 3). It is tempting to attribute this to the dry early winter, with fewer areas of flooded fields perhaps leading to overflying of the area by some swans down to Washington and Oregon. By February, however, Trumpeter Swan numbers in Victoria were regularly more than 200, almost all in the Martindale Valley. These numbers exceed all previous high counts for Martindale (Table 3). Some of these late-winter birds (at least 12) showed distinctive rust-staining on their plumage, not noticeable on those which had over-wintered here.

Overall, assuming that the CBC data are representative, it seems as though year-to-year changes in Victoria's Trumpeter Swan overwintering population largely mirror changes elsewhere in the province, especially at the other main sites on Vancouver Island. Trumpeter Swan numbers at Ladner, while showing the same pattern as at Comox and Duncan, have increased at a much slower rate than at the Vancouver Island stations. This may indicate an increasing preference for swans to overwinter on the island rather than on the mainland. It should be remembered, however, that the CBC count in BC represents only a small sample of the total overwintering population in the province and even these tentative conclusions above may be invalid.

The Saanich Peninsula as a migration stop

Examination of the sighting card data (Table 3) indicates that Quick's Bottom seems to become especially attractive to swans in late winter and early spring. The report of 85 swans on April 12, 1986 is thought to be suspect; it now appears that it may have resulted from misinterpretation of the TRSW code as Trumpeter Swan. No other Trumpeter Swan sightings for Victoria are known in April, except for a single swan that over-summered at Courtland Flats in 1989. Substantial numbers of Trumpeter Swans have, however, been documented for Quick's Bottom in March: 46 swans were there on March 12, 1989 and 46 also on March 6, 1991.

The lateness of these reports, coinciding with the time that many, if not most, of the swans have left on the northward journey to breeding grounds, remains puzzling. This year the major decline in swan numbers in the Victoria area took place in early March with a decrease from an estimated 156 on March 6 to seven on March 16. The late movement in 1989 may have been related to the cold January and February of that year (the coldest in the last 10 years).

The reason for this spring pulse, and its apparent focus on Quick's Bottom, does not appear to have been established. One possibility, however, is that Quick's Bottom represents a resting area for swans migrating from Washington State. The Peterson Field Guide to Western Birds indicates the Columbia River estuary as the most southerly of the overwintering areas on the west coast but it seems unlikely that a northward migration from there would pass over the Saanich Peninsula. Perhaps more likely is migration from a wintering area in the lowlands flanking Puget Sound.

There is circumstantial evidence that some northbound in-migration does occur as evident in the abrupt peak in numbers on February 24, just prior to the start of northward migration from the Victoria area (Figure 2: total Saanich Peninsula). The count on that day was 36 higher than four days previously and almost a hundred swans more than six days later. A similar peak was also evident in the 1993-94 count in the Comox Valley (Figure 4: top) where the end-of-February peak may reflect in-migration from the southern part of the island.

More persuasive evidence for in-migration is the observation by Marie O'Shaughnessy of six Trumpeter Swans flying northwest over Willows Beach from the Strait of Juan de Fuca, with a tail wind, in the late afternoon of March 20. This sighting is consistent with a migration path from the Puget Trough. However, no swans were observed in Quick's Bottom this spring, despite careful monitoring. The issue of whether the Saanich Peninsula is an important stop on the northbound migration, and whether this ties in with late sightings at Quick's Bottom, therefore remains unsettled.

End-note

It is hoped that these notes will be of interest to local birders, and perhaps more importantly, be useful to those concerned with protection of Trumpeters Swans and conservation of local overwintering habitats. The data and conclusions are largely constrained by resources, as is usually the case with information gathered by volunteers. The report may prove useful, however, as a first-step study of overwintering Trumpeter Swans in the Victoria area.

Acknowledgements

The work summarized here was largely the result of a small group of interested volunteers. Particular thanks go to Jerry and Gladys Anderson, Doris Brix, Wally Macgregor and Ellen Tremblay for participating on a regular basis throughout the full period of the survey. Additional reports from Gerry Ansell, Geoff and Lonny Bate, Barbara Begg, Tom Gillespie, Hank van der Pol and Marie O'Shaughnessy were also extremely useful. Emily and Sid Watts supplied CBC data for Duncan. Rick McKelvey of the Canadian Wildlife Service in Delta was also helpful in supplying additional information and provided helpful comments on an earlier draft. Graeme Fowler supplied information on the Comox Valley Waterfowl Management Project. Brent Diakow provided useful comments on a draft version.

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Michael Carson has reported on a number of studies on habitat utilization by birds, based on volunteer observations, including a survey of Blenkensop Lake (see the January/February 1994 issue of the Victoria Naturalist).

Year of the Redpoll

By Cornell Laboratory of Ornithology

Folks who feed backyard birds were "seeing red" this past winter—Common Redpolls and Red-breasted Nuthatches, that is. Volunteer bird scientists enroled in Project FeederWatch reported big increases in the "red" species compared to last winter, especially in the Northeast.

Project FeederWatch is a long-term study of feeder birds in winter. This is the eighth straight winter that the project's "kitchen window scientists" have counted feeder birds, tracking changes in bird numbers across the continent. The project is a joint program of the Cornell Laboratory of Ornithology and Canada's Long Point Bird Observatory.

When flocks of redpolls searching for food abruptly invade areas for south of their usual winter ranges, scientists call the phenomenon an "irruption." The irruptions of 1993-94 were the largest in eight years. FeederWatchers reported redpolls at 28 percent of feeders continent-wide, up from eight percent in the winter of 1992-93. The Northeast saw the most spectacular invasion: redpolls visited 48 percent of FeederWatch sites, up from only three percent the winter before. FeederWatchers also reported higher-than-normal numbers of Hoary Redpolls, a species that ordinarily winters above the Arctic Circle.

The Red-breasted Nuthatch, the other "red" invader, was reported at 36 percent of FeederWatch sites, up from 29 percent in 1992-93. The north-central part of the continent saw a virtual explosion as these nuthatches visited 61 percent of all FeederWatch sites, up from eight percent the previous year.

One of the special strengths of Project FeederWatch is its ability to track dynamic changes in bird numbers. Other volunteer-based bird counts, such as the National Audubon Society's Christmas Bird Count, collect information over a very short period of time, providing a snapshot view of bird numbers and distribution. In contrast, FeederWatch data provide a virtual video, mapping changes in bird numbers week-by-week over the course of the winter. The maps compare redpoll numbers at the beginning of the winter and at the height of the invasion.

The majority of Project FeederWatch participants live in northeastern states and provinces but the project has observers in every U.S. state except Hawaii and every Canadian province, including the Yukon Territory. Together they have added 311,686 records to the ornithological database.

There is still much more to learn. Some regions of North America are greatly under-represented in FeederWatch. Why not make your backyard an official Project FeederWatch research station this winter?

Those interested in participating in Project FeederWatch can write: Project FeederWatch, Long Point Bird Observatory, P.O. Box 160, Port Rowan, Ontario, N0E 1M0, or call (519) 586-3531. Project FeederWatch is financed by participants. A fee of $16.00 is charged to cover materials that you receive and database management.

NATURAL HISTORY PRESENTATION—TUESDAY NOVEMBER 8, BEGBIE 159, UVIC
"THE LIFE AND TIMES OF RIVER OTTERS," BY JENNY BALKE

River Otters Photo by Bertha McHaffie-Gow, who will generously donate the door prize.

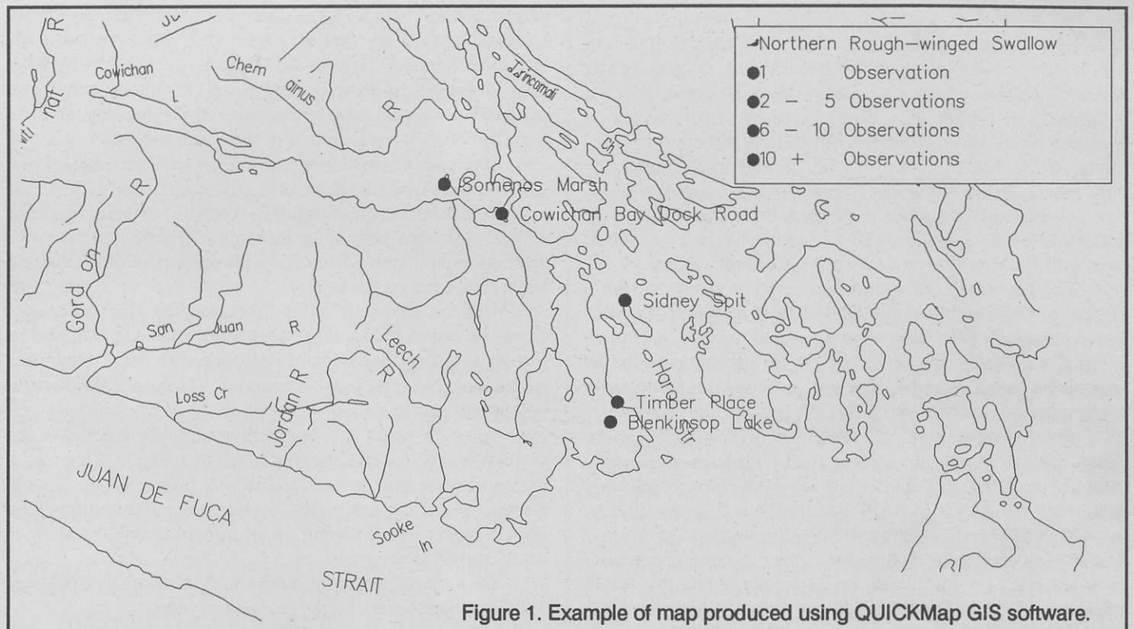


Figure 1. Example of map produced using QUICKMap GIS software.

Development of Wildlife Observation System (WLD)

By David Pearce

Having developed computer systems for other people for the past 25 years, I considered bird watching to be a hobby where I escaped my desk-bound discipline of programming. Having faithfully recorded my observations in diaries since 1959 and my bird nesting surveys for the British Trust for Ornithology in the 1960's, I had not thought about computerizing my hobby until Mike Shepard approached me with the idea in March, 1994.

Mike has been responsible for helping to collect and analyze bird sighting index cards in BC for the Royal British Columbia Museum. When he showed me a design for collecting bird observation details—including habitat, ecoregion, biogeoclimatic zone and map coordinate specifications—the idea for a neat new system came to mind.

The first task, as a systems analyst, was to remove the complicated parts of the observation requirements to a separate screen based on location, not bird species. Mike divided the Victoria Checklist Area, which stretches across the south-east of Vancouver Island from Ladysmith in the north to Otter Point west of Sooke, into 730 different locations. Now, if the system is to meet the requirements of a serious research tool, it will be necessary for the researchers in each region to pre-define all the locations within their district for the local observers to use.

The name of the system is the Wildlife Observation System (**WLD**), since the intention is to develop further menus to enable observers to record other types of animal observations. The system has been developed using FoxPro 2.6 for DOS and is divided into locations and species observations. Associated with each location are alias names, UTM mapping coordinates, ecoregion, biogeoclimatic zone plus town/city, province/state, country and continent codes. Associated with each species observation are the date, location, number of adults and immatures of each sex, up to six observer names, unlimited remarks, habitat type, and bibliography. Observations at this level of detail require a lot of data entry and would normally be entered only for rare or unusual sightings. To speed up data entry, we added the capability to create and save multiple checklists. Each checklist can be printed and taken to the field to record observations. A fast data entry screen showing the checklist can then be used to simply enter the number of each species observed.

—continued following page

WHALE HOTLINE

Report marine mammal sightings & strandings to

380-1925 in the Victoria area

On the water:
VHF channel 68 to the vessel *Sundiver*

1-800-665 toll-free anywhere in B.C.

All sightings, no matter how old, are useful for research purpoes and are entered into a computer data base. Records are available to all researchers. When current local sightings of killer whales or any unusual species are reported, researchers will try to respond to them. Please report date, time, location, description of the animals, number direction of travel, and behavior, as well as your name, phone number and address in case further information is required.

WLD contains powerful search capabilities and context sensitive help screens for each data entry field requiring a predefined value (locations, habitat classes, biogeoclimatic zones, etc.). Various reports can be produced based on species, locations, date ranges or an individual month. Bird lists can be obtained by location, city/town, province/state, country, continent or life list and they can be printed in taxonomic or chronological sequence. There is a communications module that will permit data to be downloaded as a batch file to a diskette. Future upgrades will allow data to be transmitted from individual systems to a central system via modem.

The program contains the potential to interface with a mapping program. Using the **QUIKMap** GIS system the user can map all observations for a specified species in British Columbia. **QUIKmap** contains a zoom feature that permits any part of the province to be depicted, as shown in the example (Figure 1).

A run-time copy of **QUIKmap** GIS with mapping capability is NOT present in the software package as currently offered but will be available in January, 1995, for an additional cost of $60.00

The **WLD** system comes with a self-installing diskette and a user guide explaining its functions. It has the design potential to be set up to operate anywhere in the world and to contain all species in the world. **WLD** will run on any IBM compatible PC and sells for $68.40 (includes GST and PST). Contact: David Pearce, Orca Consulting Group Inc., 4781 Timber Place, Victoria, B.C. V8Y 2L6. Phone (604) 658-0295.

David Pearce has coordinated the database for the Christmas and Spring Bird Counts for the past several years. QUIKMap is a desktop mapping software program written and supplied by the Axys Group of companies in Sidney, B.C.

Christmas Bird Count—December 17, 1994

By David Pearce

The Victoria Christmas Bird Count (C.B.C.) will be held on Saturday, December 17, 1994. The purpose of the C.B.C is to count birds observed within a 15 mile diameter circle covering the Greater Victoria area, centred on the intersection of Grange Road and Jasmine Avenue in Marigold. The circle is divided into 22 land areas and two ocean areas, each having an area leader.

Victoria Natural History Society members are encouraged to participate in the Christmas count in one of two ways—either as an active "counter" in the field or as a feeder watcher.

If you participated as a "counter" in the Christmas count last year, you will be contacted and asked if you would like to participate this year. If you did not take part in the Victoria count last year but would like to participate, please contact David Pearce, Count Coordinator, at 658-0295 by November 30, or sign up at the November Birder's Night.

If you have a feeder in your yard and wish to participate as a feeder watcher, simply watch your feeder on December 17 and record all bird species and number of individuals of those species. Mail or bring your list into the Field-Naturalist/Swiftsure Tours, 1241 Broad Street, Victoria, V8W 2A4. Please put your name, address and telephone number on the list. Your report must be received by Wednesday, December 21 in order to be included in the count records.

If you see a rare bird at your feeder on December 17 (see the Victoria Area Checklist of Birds or last year's Christmas count results in the March/April issue of the Victoria Naturalist to find out what is rare in December), please phone your sighting immediately to the Rare Bird Alert at 592-3381 and leave a message on the tape.

Victoria currently holds the Canadian Christmas Bird Count record of 152 species, set in 1991. This was achieved by getting an exceptionally good coverage with over 150 people taking part. So please mark December 17 in your calendar and join us in trying to set another record!

After the count we are planning to hold a meeting at the Gordon Head United Church starting at 7:30 p.m. This will be the same format as a regular Birder's Night, where we will discuss the day's count results. Coffee, tea and biscuits will be served. If you wish to bring an additional dessert to share it would be greatly appreciated.

David Pearce has organized the data from both the Christmas and Spring Bird Counts for the past several years.

Witty's Lagoon

By Christine Morissette

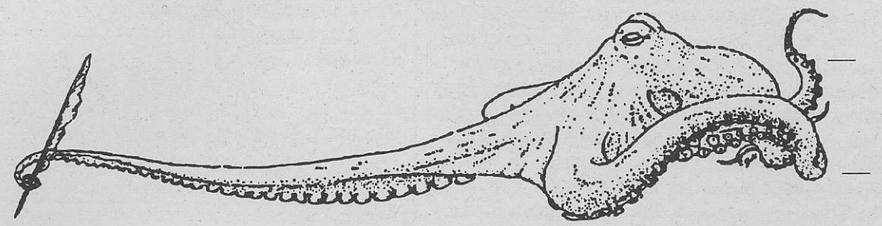
What a day for birding! You move slowly along the trail, enveloped in a forest filled with birdsong. Overhead, the sound of your footsteps triggers the rustle of wings and the chirp-chatter of woodland chaperons. When you reach the beach, mist lifts slowly off Witty's Lagoon, revealing glistening sand dotted with shorebirds. In the low light of early morning, you can just make out shapes. As you move closer, identification becomes easier, if only you'd brought your field guide to coastal birds. Instead you opted for free hands and less weight in your fanny pack.

Have we got news for you! CRD Parks recently published a bird list for Witty's Lagoon. This brochure fits neatly in your pocket, weighs no more than a kleenex, and is as easy to use as letting your fingers do the walking! *Birds of Witty's Lagoon* tells you who's who and who's sighted at the lagoon throughout the year. It's available through CRD Parks in Langford, in the Nature Houses at Francis King Regional Park in Saanich and the Witty's Lagoon Regional Park in Metchosin, or at the CRD offices at 524 Yates Street. It can also be found at the Field Naturalist. Check it out and then start checking off your sightings in *Birds of Witty's Lagoon.*

Another note for naturalists. CRD has just published a new natural history brochure, *Wildflowers of Mill Hill,* which should prove to be a handy checklist when Spring comes around. Though it is mainly a focus on wildflowers, it also lists native shrubs and trees found on the hill. It will be available at the same locations listed above.

Christine Morissette is Information Co-ordinator for CRD Parks. For further information on park activities call 478-3344.

PACIFIC OCTOPUS

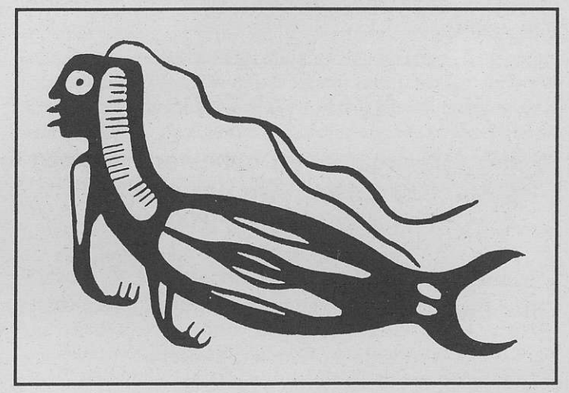


By Lynton Burger

A mist hangs over the water. Islands loom like ghosts, their wind-cropped cedar crowns spike the wofting fog. The sea licks at the land, gently here, running like a river there, in the surge channel between the dark, wet rocks. The dark-orange rockweed drips in the freshness as the tide recedes. On the islands the birds are fluffed. Bald eagles sit atop their nests, their white crowns buried in their chests. For a moment the sun shows through the thinning white then disappears as the mist shrouds and feels the land and the sea. A dark crow pecks at the freshly exposed rocks.

A canoe slices the dark water quietly. The paddles, shaped like broad arrows so as not to scare the herring below, dip in and out of the water. The two paddlers, a father and a mother, do not talk. Tied up in the bottom of the boat is Sedna, their daughter. She has done the unspeakable. They have been instructed by the elders to kill her by dropping her in the deep water beyond the outer island. Out where the salmon gather, before they journey up the river.

When they reach that place they untie her and without looking in her frightened eyes they throw her overboard. Just like that. When she hits the cold water she screams and her scream gets the bald eagles head out of his armpit. The Orcas hear it and they stop in the water. The crackling of the reef stops for just a second. The deer licking salt from the rocks looks up. Sedna calls. She grabs the side of the boat with her hands and cries out to her parents to help her. "Please," she begs them. "Please, oh please!" she cries. The Orcas listen. The Grey Whale wallows, waiting.



Sedna—a symbol of fertility who controls most sea creatures.

Her father, whose heart is normally as hard as a bear skull, but is now like melted seal fat, takes his skinning knife and he hacks off his daughter's fingers in two swift blows. He cries for the first time in his life. His wife throws the warm fingers into the cold water and screams through her tears to her husband to go home.

Sedna and her ten fingers drift down and down in the clear water. But one by one the fingers turn into sea creatures. One becomes a sea lion, one a seal, one a sea otter, the thumb becomes a rockfish, the other a lingcod, one turns into a whole school of salmon, another becomes an Orca. All ten become sea creatures and they circle around Sedna, whose long hair wafts in the current, joining the other animals of the sea that have swum to be with her. She drifts slowly to the bottom of the ocean to become *She Down There,* the *Halfaway Woman*. From then on she became Ruler of all the sea creatures.

(In this fictional short sketch I have used my "writers licence" to transport the story of Sedna from the Arctic realm, for she is an Inuit sea goddess, to the west coast of Canada. Various stories exist about her beginnings and her function as ruler of the sea creatures. The central belief, however, is that Sedna is a symbol of fertility who controls most sea creatures. Other names for her are *Kavna, Takanakapsaluk, Arnakapfaluk, Nutiajuk, Niviarsiang* and *Uinigumissuitung*. In the next column I will introduce you to an African merman—the East African Man-of-the-Sea.)

Book Review

Peninsula Shore Dives, by Jason Crabb and Adrian Lam
Published by Lamcra Publishing, 1994.

This 66 page guide to some of the shore dives around Victoria is a welcome addition to my bookshelf. I found the text concise, logical and easy to read. The book is written by marine biologists and as a result it is full of interesting titbits about underwater creatures that you are likely to encounter on particular dives. Dives are described in sections, by location, such as Oak Bay Dives, Greater Victoria Dives, Esquimalt Dives, etc. The maps are clear and easy to follow and the dives are well described. They could have used metric depth measurements instead of feet (both would have been good). The photographs are not bad for a low budget, desk top published book. This book is both user-friendly and useful and at a suggested retail price of only $9.95 I recommend that you buy your copy soon (only a limited number were printed). Orders and enquiries to: Lamcra Publishing, Victoria. Phone (604) 744-7540.

Lynton Burger is the Associate Editor of the Victoria Naturalist.

CALENDAR

REGULAR MEETINGS are generally held on the following days. **Board of Directors:** the first Tuesday of each month. **Natural History Presentations** (Formally known as the General Members Meeting): the second Tuesday of each month. **Botany Night:** the third Tuesday of each Month. **Birders' Night:** the fourth Wednesday of each month. Locations are given in the calender listings. Telephone the VNHS Events Tape at 479-2054 for further information and updates.

NOTE: There is no scheduled Botony Night or Birder's Night for December.

NOVEMBER EVENTS

Tuesday, November 1

Board of Directors' Meeting. Clifford Carl Reading Room, Cunningham Building, University of Victoria at 7:30 p.m. Note that Parking Lot "A" by the Cunningham Building no longer exists.

Saturday, November 5

Mushroom Foray. Join **Adolf Ceska** (477-1211) for a stroll down to Iron Mine Bay to search for mushrooms and lower plants. Meet at Helmcken Park and Ride at 9:30 a.m. or Iron Mine Bay Parking Lot at 10:15 a.m.

Tuesday, November 8

VNHS Natural History Presentation. Room 159, Begbie Building, University of Victoria at 7:30 p.m. We are pleased to have **Jenny Balke** of Denman Island present *The Life And Times of River Otters in Coastal British Columbia*. Jenny has researched these wonderful animals for a number of years and will share some of her knowledge about them. Everyone is welcome. Bring your friends and your coffee mug. There will be a door prize.

Tuesday, November 15

Botany Night. Swan Lake Nature House, 7:30 p.m. Phone the VNHS Events Tape at 479-2054 for details.

Sunday, November 20

Birding at Martindale. Here is a good chance to practice for the upcoming Christmas Bird Count. Martindale Flats is one of the best winter birding spots in Canada with over 90 species recorded on previous counts. Wear your Wellies and meet **Brent Diakow** (656-3190) at the Farmers Market Building, Pat Bay Highway and Island View Beach Road, at 8:00 a.m.

Wednesday, November 23

Birders Night. Room 159, Begbie Building, University of Victoria at 7:30 p.m. *In Quest of Hawaii's Birds*. Here is your chance to escape a cold November night and imagine yourself, warm and tanned, among the birds and natural treasures of Hawaii. **Robert Ward** of Victoria, an accomplished wildlife photographer, will show us some of the endemic, introduced and migrant species of this mid-Pacific paradise. Everyone is welcome. Bring a friend, your coffee mug and your binoculars.

Saturday, November 26

Reifel Bird Sanctuary Snow Goose Field Trip. Join **David Allinson** on this popular annual trip to see the wonderful wintering waterfowl of the Fraser Delta. Flocks of up to 10,000 Snow Geese have been seen in previous years. This area also supports a variety of shorebirds, raptors and songbirds. Travel expenses will be approximately $25.00 per person if we car pool effectively. To sign up call David (478-0457) or Marilyn (477-5922).

DECEMBER EVENTS

Saturday, December 3

Eagles, Seagulls and Salmon. Come and witness the annual spectacle of spawning salmon and the other species they attract at Goldstream. Meet at the Nature House at 11:00 a.m. Leader: **David Fraser** (479-0016).

Tuesday, December 6

Board of Directors' Meeting. Clifford Carl Reading Room, Cunningham Building, University of Victoria at 7:30 p.m. Note that Parking Lot "A" by the Cunningham Building no longer exists.

Tuesday, December 13

VNHS Natural History Presentation. Room 159, Begbie Building, University of Victoria at 7:30 p.m. Come and enjoy an evening of 10 minute presentations on interesting topics and destinations by some of our many talented members. Everyone is welcome. Bring friends and your own coffee mug. If you wish to show some slides, contact **Mike Ryan** at 727-2153.

Saturday, December 17

Christmas Bird Count. VNHS members are encouraged to participate in this year's Christmas Bird Count. You can participate in one of two ways - either as an active "counter" in the field or as a feeder watcher. If you participated as a "counter" in the Christmas count last year, you will be contacted and asked if you would like to participate this year. If you did not take part in the Victoria count last year but would like to participate, please contact **David Pearce**, Count Coordinator, at 658-0295 by November 30, or sign up at the November Birder's Night.

HELP WANTED

Volunteers required for behavioral ecology research of Western Grebes off Saanich Peninsula and Gulf Islands.

Assistants required for marine bird surveys on Sunday mornings and for observations of foraging behaviour.

Contact: James Clowater
Telephone: 598-4570
E-Mail: clowater@sfu.ca

BULLETIN BOARD

Wanted! Donation or Loan of Fossils.

A Fossil Display will be prepared and shown in the City of Duncan Museum. Anyone willing to donate or loan fossil specimens should contact **Dr. Alan McGugan** (1-604-743-4332) or write to him at 1157 Rolmar Crescent, R.R. #2, Cobble Hill, B.C., V0R 1L0. Specimen labels should include the fossil name, location collected and the name of the donor.

Needed!

The Publicity and Program committees are seeking a few members to donate some home baking for our opening meeting - Natural History Presentations - on September 13. If any member is wiling to donate a door prize for any of the 1994-95 Natural History Presentation meetings (formerly the General Members Meeting) please contact **Bev Glover** 721-1476.

Reminder!

The Swan Lake Nature Centre holds birding walks regularly on Wednesdays and Sundays at 9:00 a.m. Everyone is welcome to join in.

For Sale

The Garry Oak Meadows Colloquium. A colloquium was held at the University of Victoria i 1993 to study the Garry Oak (*Quercus garryanna*) and its associated meadow ecosystem. This is one of the rarest and most endangered ecosystems in British Columbia, remaining only in isolated patches on SE Vancouver Island and some Gulf islands. *The Garry Oak Meadows Colloquium* is edited by Richard Hebda and Fran Aitkens and published by the Garry Oak Meadows Protection Society. The proceedings includes papers on the Garry Oak, wildflowers, grasses, insects, and ethical, educational and development issues. To order, send $12.00 (includes postage and handling) to **Fran Aitkens**, #4-921 Foul Bay Road, Victoria, B.C. V8S 4H9.

For Sale

Ocean to Alpine - A British Columbia Nature Guide. This new book by Joy and Cam Finley is available from **Lyndis Davis** (477-9952). Also Available for sale: National Geographic's *Field Guide to Birds*; the *Naturalist Guide to the Victoria Region*; *Birds of Victoria*; the Victoria Area Bird Checklist; and, the new Victoria Natural History Society's Window Decals.

Back Issues of the Victoria Naturalist

Copies of back issues and indices of the Victoria Naturalist are available from **Tom Gillespie** (361-1694).

Garry Oak Meadow Society Membership

The Garry Oak Meadow Society aims to promote, conserve and restore our native oak meadow lands. You can help them to preserve our rarest Canadian habitat by joining the Society or through donations to any branch of Pacific Coast Savings Credit Union. For further information contact **Joyce Lee** at 386-3785.

Marine Ecology Station

Explore British Columbia's marine bio-diversity at the Cowichan Bay Maritime Centre. Life exhibits of B.C. sea life can be seen under microscopes and in live video displays. There are also programs available for schools, camps, naturalists and educators. The Centre is located on the water at 1761 Cowichan Bay Road. For more information phone **Dr. Bill Austin** at 746-4955.

Calling All Paddlers!

As a new member of the Victoria Natural History Society I would hike to hear from fellow paddlers who would be interested in going birding via kayak or canoe. Call **Marcia Farquhar**, 474-6890.

Washington State & B.C. Birding E-Mail.

Dan Victor (@u.washington.edu) sends this paper message. There is a Washington State (plus B.C.) birding email group called tweeters. This group currently is comprised of 130+ subscribers mostly form around Washington State but also extending into Oregon, British Columbia and as far east as Chicago. A number of interesting discussions have taken place on this forum. Gene Hunn posts the Washington State birding hotine weekly.

If you have Internet access send email to listproc@u.washington.edu with the following test line "information tweeters". This will give more details on the list and how to subscribe.

URGENTLY REQUIRED

Treasurer,
Victoria Natural History Society

Must be familiar with basic book keeping procedures and preparation of financial statements.

If interested, please contact Gordon Devey at 652-6879

or David Allinson at 380-8233

The Victoria NATURALIST

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Publications Mail Reg. 6428

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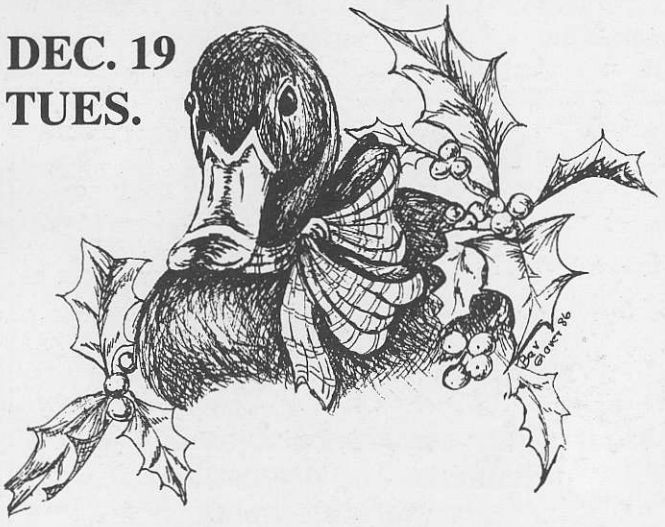
DEC. 19
TUES.



NATURAL HISTORY PRESENTATION
CHRISTMAS SPECIAL
7:30 P.M., BEGBIE 159, UVIC

Variety of Short Presentations
by VHNS Members
All Welcome. Door Prize.
Bring Coffee Mug, Friends,
Santa And The Elves.