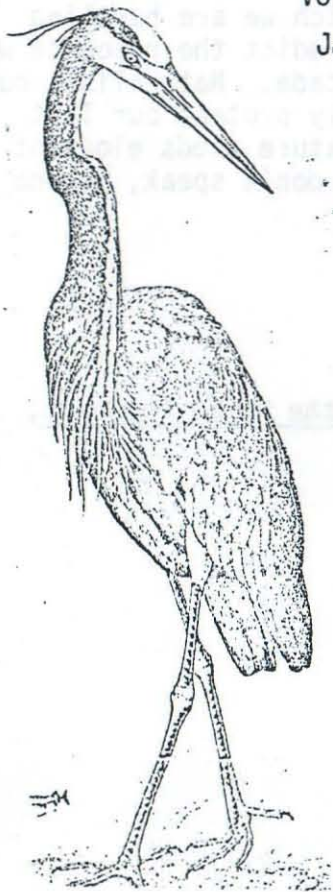


THE THRUSH

The Quarterly Publication
of the Nanaimo District Naturalists

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✓ PRESIDENT'S MESSAGE

JAN. 17.11
Brian Wilkes

Now that the hoopla of ushering in a new year is over, we can seriously take stock and reflect on the future. We, as naturalists, must not consider ourselves solely as members of this tiny club in a small corner of the world, but as citizens in a major civilization. Individually, of course, a new year fills us with new hopes for success and health, but we really don't know what the future holds. In a global context, our future as people, must inevitably follow upon the course set by historical events from years past. Our future as world citizens is not bright at all.

Do you remember the dawn and eventual death of the "ecology movement" in the late sixties and early seventies? If there was a lesson to be learned from this movement it is this: Never before have so many people placed such a persistent and pernicious demand on what is left of our natural resources. Our population and our material expectations are constantly expanding in a world in which the means of support are constantly diminishing. As a result, even in "Beautiful British Columbia", wild places and natural landscapes are gradually being nibbled away bog by bog, marsh by marsh, forest by forest. This is not some hypothetical Malthusian nightmare, but a very real phenomenon, so slowly progressing that we can hardly perceive the changes.

In government and private decisions over resource use or preservation, compromises are supposedly made on the basis of political and economic considerations. Politics and economics are collectively compromising our living environment, and in the name of material progress, our material demands are met at the expense of non-human nature. The problem is that political compromises have more to do with the maintenance of partisan power than with the public interest. And economic compromises are based on conventional economic theory which is fundamentally faulty because it does not recognize real scarcity or real limits.

My message to you is that as naturalists we hold non-human nature as a sacred trust; we must uphold this trust through serious and consistent activism and involvement in adversary conflict with those that would compromise it. As individuals working in government and industry, sometimes we have to compromise to get a job done. But as an organized group of naturalists we must never compromise.

We cannot consume non-human nature and have it too. The prospect of an ocean of humanity in a ravaged landscape is hardly pretty, but is one toward which we are hurtling willy-nilly. Read Heilbroner¹; I predict the resource wars will begin before the end of the decade. Naturalists must meet the attack head on, and actively protect our last remaining wild places. Non-human nature needs eloquent and knowledgeable spokesmen. If we don't speak, no one will.

¹ Heilbroner, R.L. An Inquiry into the Human Prospect, Norton, New York 1974

EDITOR'S COMMENTS

Ken Knowles

We have a small club, seventy-five members in all, and yet when you search the membership list for people you think have the talent and ability to write articles that will stand up to the close scrutiny of not only our club, but to the many knowledgeable naturalists from other cities and provinces who will read this publication, there is hardly a member that couldn't be called upon to contribute.

As you will find when you read this issue; we have within our organization people who have not only the knowledge but are willing to share it with the rest of us and lend a degree of credibility to our publication. Without their efforts this issue wouldn't have gotten off the ground in such a short period of time. When I called them and asked for a contribution within ten days - everyone responded without delay or complaint! These contributors deserve our thanks for making this the interesting issue that it is.

I would also say that the contributions came in such abundance that all couldn't be used in this issue and thus have given us a head start on our summer issue.

Enjoy your copy of the THRUSH and while reading it - remember that it was written by the same group of people you talk to at club meetings or walk beside on field trips.

CHRISTMAS BIRD COUNT 1976

P. van Kerkoerle

For many of our club members the Christmas Bird Count day is one of the very best days of the year. This year in particular it was great. The weather was good and there were plenty of birds. Count day started with light frost and it warmed up to about 8°C. After the two rainy Christmas days this was ideal weather. The birds were hungry and very active. No wonder the tally was high. The count area was divided into several sections, and each group of people checked out one section. This year again, our numbers were reinforced by several Duncan naturalists. Their help has always been very important towards the success of our count. We were also fortunate to be able to use the boat of Mr. Al Holt who made it possible for us to check the outlying islands. New this year was the use of a small plane to reach the far out areas behind Gabriola Island, which were never checked out before. Through the courtesy of Nanaimo Flying Club we were able to reach this area by plane.

Due to all these circumstances we came up with 103 species and 19,239 individuals. Of course we missed some of the commoner ones like California Quail, White Crowned Sparrow, Herring Gull, etc.

I have been asked - "can you notice from the counts if the birds are decreasing or increasing?". To be true I have to say 'not really'. Five counts are not enough to make any such statements. It should not be forgotten that we are dealing with wintering bird populations and not with nesting birds.

The size of a wintering population is related to an available food source. So if the fresh water freezes, ducks move away. An area showing many ducks last year may be empty this year. So climate plays a major role too.

But we ourselves are becoming wiser. Our knowledge has improved considerably in regards to the terrain and of bird recognition.

So there are many other factors, which have to be checked out too before we can come to any conclusions in regards to true increases or decreases in populations. I am giving here a few species and their five year counts. It is interesting to check out the variables, which may have affected their numbers.

SPECIES	1972	1973	1974	1975	1976
✓ Trumpeter Swan	24	74	28	36	50
Killdeer Plover	14	7	34	56	68
✓ Red Tailed Hawk	3	2	5	3	10
Pileated Woodpecker	6	1	6	9	20
Song Sparrow	30	43	55	56	67
✓ Pine Siskin	648	603	181	2650	3131
✓ Red Crossbill	-	26	2	40	232
Starling	1133	749	926	2044	881
Robin	631	840	778	819	726
✓ Surf Scoter	16	142	283	925	1943
✓ Barrows Golden Eye	9	42	138	206	2016

First the trumpeter swan. In our Christmas counts their numbers have more than doubled within five years. However, other swan counts during 74 and 75 have many times amounted to ±50 swans. Therefore, it is likely that some swans just happened to be outside the count circle during our 74 and 75 Christmas count.

Our Surf Scoter and Barrows Golden Eye numbers show steady increases particularly from 1974 on. That year we used a boat for the first time. Last year more time was spent on the water. This year we also used a plane. This gave much better coverage including that of large far out areas around Gabriola Island (North Point). Thus increases in these duck numbers are obviously due to better coverage.

Pine Siskin and Red Crossbill are quite nomadic and their high numbers are always related to good seed crops. Did you notice there were many cones on cedar, fir and hemlock? With the Red Tailed Hawk the weather may have been the controlling factor. Weather conditions were good for flying

Surf Scoter	1943	Barn Owl	-
Black Scoter	280	Snowy Owl	-
Ruddy Duck	1	Pygmy Owl	-
Hooded Merganser	9	Short-eared Owl	1
Red Br. Merganser	36	Ruffed Grouse	3
Common Merganser	93	Blue Grouse	-
American Coot	63	California Quail	-
Shoveler	4	Chukar	-
Brant	3	Ring Necked Pheasant	11
European Widgeon	2	Anna's Hummingbird	1
Killdeer	68	Belted Kingfisher	14
Bl. Bellied Plover	2	Redshafted Flicker	62
Surf Bird	80	Yellow Shafted Flicker	-
Black Turn Stone	62	Pileated Woodpecker	20
Common Snipe	2	Hairy Woodpecker	5
Wandering Tattler	-	Downy Woodpecker	7
Solitary Sandpiper	-	Steller's Jay	20
Semipalmated Sandpipe	-	Gray Jay	-
Greater Yellow Legs	-	Common Raven	73
Rock Sandpiper	-	N.W. Crow	1295
Dunlin	100	Clark's Nutcracker	-
Black Oyster Catcher	45	Yellow Bellied Sapsucker	1
Common Murre	12	Chestnut B. Chickadee	156
Pigeon Gmillemot	50	Bushtit	10
Marbled Murrelet	5	Red Breasted Nut Hatch	12
Ancient Murrelet	-	Brown Creeper	6
Rhinoceros Anklet	-	Dipper	2
Glaucous winged Gull	3668	House Wren	1
Western Gull	-	Winter Wren	24
Herring Gull	-	Bewick's Wren	17
Mew Gull	346	Long B. M. Wren	2
Bonaparte's Gull	1	Band Tailed Pigeon	11
Herring Gull	-	Rock Dove	91
Ringbilled Gull	-	Robin	726
Goshawk	-	Varied Thrush	19
Sharpshinned Hawk	4	Townsendt's Solitaire	-
Cooper's Hawk	5	Golden Gr. Kinglet	124
Red Tailed Hawk	10	Ruby Cr. Kinglet	14
Rough Legged Hawk	-	Bohemian Waxwing	-
Bald Eagle	46	Cedar Waxwing	10
Marsh Hawk	4	Northern Shrike	3
Peregrine Falcon	2	Starling	881
Merlin	-	Yellow R. Warbler	-
Am. Kestrel	1	House Sparrow	2

this year and this increases hawk sightings very much. Robin showed no increase, even this year with such a good Arbutus berry crop. I had expected a bumper crop of robins.

Starling numbers are certainly up but our last count shows a decrease. How easy it is to miss just one flock say a thousand birds. It probably happened this year. Song Sparrow is undoubtedly a bird people recognized better every year. It is mostly hidden in hedges or brushy areas and its call is not loud and easily overlooked by beginners. So maybe it is more experience here. Only Killdeer and Pleated Woodpecker show real increases in wintering population. Both birds food supply is little affected by weather. Both birds are easiest detected by their loud cries. Even beginning birders are familiar with them. So during our earlier counts we would have been alerted to them in a similar way.

I believe that only when we look through the data of all counts in North America and add up numbers we can detect true increases in populations. However, our data by itself are of little value other than to give us an enjoyable day.

We thank the Duncan group for their help making this an outstanding day. Also thanks go to Mr. Al Holt who again offered his boat for the cause and to the Nanaimo Flying Club for the use of their plane. It was sure appreciated.

Christmas Bird Count
December 27, 1976

103 Species

19,239 Ind.

Common Loon	26	Pintail	126
Artic Loon	15	Gr. Winged Teal	38
Red Thr. Loon	4	Am. Widgeon	602
Red Necked Grebe	50	Wood Duck	2
Horned Grebe	67	Canvas Back	-
Eared Grebe	13	Redhead	-
Western Grebe	160	Ring Necked Duck	11
Pied Billed Grebe	4	Greater Scaup	94
Double Crest Cormorant	56	Lesser Scaup	62
Brandt's Cormorant	48	Common Goldeneye	139
Pelagic Cormorant	57	Barrow's Goldeneye	2016
Great Blue Heron	27	Buffle Head	111
Whistling Swan	-	Old Squaw	55
Trumpeter Swan	50	Harlequin Duck	50
Canada Goose	54	White Winged Scoter	88

Western Meadowlark	-	Towhee	37
Red Winged Blackbird	151	Savannah Sparrow	-
Brewer's Blackbird	57	Oregon Junco	554
Cassin's Finch	-	White Cr. Sparrow	-
Evening Grosbeak	8	Golden Cr. Sparrow	16
Purple Finch	81	Fox Sparrow	10
House Finch	2	Song Sparrow	68
Pine Grosbeak	-	Snowbunting	-
Pine Siskin	3131	Water Pipet	-
Am. Goldfinch	-	Horned Lark	-
Red Crossbill	232	Lincoln Sparrow	1



Naturalists attend Environmental Series Lecture

The recently held Environmental Lecture Program sponsored jointly by SPEC and NDSS was well attended by members of the NDN with 15% of those in attendance being members of our Club.

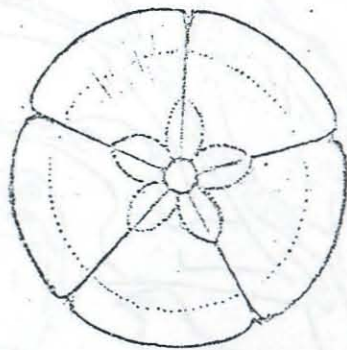
✓ 'Honky Tonky' Gets Married

The van Kerkoerle's announced recently the marriage of their Canada Goose 'Honky Tonky' to the lovely 'Daniel'. The bride wore the traditional black, grey and white and was heard to say the following affectionate words to her new husband "Honk" "Honk" "Honk" "Honk".

Brian Wilkes

Has the enviable task of studying the coastline between Nanaimo and Courtenay doing an ecological survey of the coastline to determine the impact of marines on the environment.

Wouldn't we all like to get paid for walking the beaches of beautiful Vancouver Island ?



Birds are the usual fare for Vancouver Island naturalists, and for good reason. They are numerous and observable and can be readily studied year round with little equipment other than binoculars. Not so the mammals. But, perhaps that makes the mammals all the more intriguing.

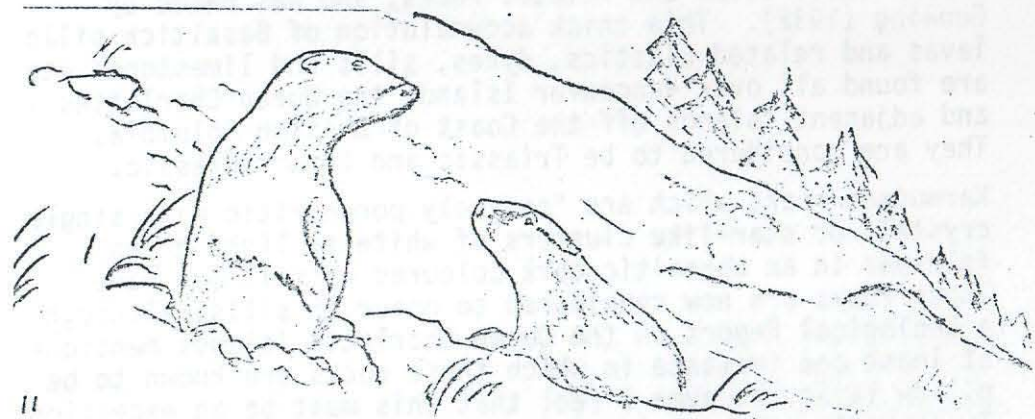
In Saskatchewan, a Christmas mammal count is carried out along with the bird count, and a few species are tallied. But here on our Pacific Island such effort would be fruitless due to the dense plant cover and small number of species available for study. Let's take a look at how small a number and why.

The number and kind of mammals which have reached islands, and how they evolved after getting there, is a subject which has fascinated biologists since Darwin's time. Obviously the width of the water gap to be crossed is important, but so is the size of the island, and its glacial history.

Vancouver Island, separated from the mainland by a series of fairly narrow channels in the Discovery Island area (near Campbell River) has only eighteen species or kinds of native land mammals compared with the B.C. total of over 80; and the Queen Charlottes, 34 miles from the nearest mainland, have only eight species. Small islands far at sea usually have no native land mammals, but always some birds. Island size is also important. Large islands usually have more native mammals than smaller islands the same distance from shore. This is because many islands are just too small to support self-sustaining populations of the wide-ranging larger mammals like elk, wolves, bears and cougar. And, random colonizers are less likely to drift ashore on tiny islands.

Lastly, glacial history plays a role. Tropical islands the same distance from their mainland as Vancouver Island is from its, normally have a larger list of mammal species. This is because our island, and others on the B.C. Coast, have emerged from beneath a relatively complete blanket

of ice during the past 10,000 years - a very short period of time in total geological history. Islands in the tropics have had much longer periods to become colonized, and for the colonizers to evolve into new forms.



Vancouver Island's list of eighteen species of native land mammals does not include the marine mammals (whales, seals, sea lions) or bats (which like birds can turn up just about anywhere), or introduced species. It is a short list compared to Britain's twenty-four (plus several others now extinct) and Trinidad's thirty-one, but better than the Falkland Island's one species (a fox, now extinct at the hand of man) or Iceland's three species.

Many factors determine which species will eventually colonize an island. Good swimmers readily get to nearby islands, thus it is no surprise that black-tailed deer, black bears, wolves, otters, mink, raccoons and beaver got to Vancouver Island. But what about our own Vancouver Island marmot - certainly not a swimmer by choice. The ancestors of this species probably got to the island across land during an inter-glacial period or toward the end of the last glaciation. At that time so much water was tied up in the huge continental glaciers that sea levels were much lower than now, and many islands were connected, or nearly so, to nearby mainlands. As well, the climate and vegetation were similar to tundra and

taiga (subalpine-like) conditions, probably to the liking of our marmots' ancestors. Other arctic-alpine mammals such as the wolverine probably also made their entrance under similar conditions, that is across "land bridges" in the Discovery Island or Strait of Juan de Fuca areas

Smaller mammals such as mice or shrews commonly reached islands on drifting debris such as comes down mountainside during landslides, or as stowaways in Indian canoes.

Some of our Island mammals are not exactly abundant. Only two or three colonies of the marmot, the only mammal to have evolved into a distinct species on Vancouver Island, are known to science. The wolverine (a separate sub-species or variety) appears to be equally rare. The sea otter was of course, wiped out by man but has been re-introduced. Success of the re-introductions has not been adequately established, but a few sightings have been made. All other mammals on the Island seem to be holding their own, even the wolf, which is on the rare and endangered list.

The Island has also been "enriched" by addition of non-native species, including the red fox, muskrat, and fallow deer, but only the muskrat has spread throughout the Island. Introductions of mammals to islands have generally done more harm than good, so any such proposals must be looked at very carefully. Two such exotic species on Vancouver Island are the ubiquitous house mouse and the Norway rat.

No doubt the rewards of birding on our precious island will continue to compensate local naturalists who must do without the smell of skunk, chatter of chipmunks, photos of moose, or rabbit stew (wild of course). But with no moles in the garden, gophers on the golfcourse, coyotes in the henhouse or grizzlies in the campgrounds can we really complain?

FLOWER ROCK

Winnie Espitalier

Yes...Flower Rock...Botanists beware ! And lots of us pick the rock flowers and use them for ornamental purposes...just as they are found for a pet rock, or if you are Japanese, for a Suiseki, an object to be put on view as an art form. Others make them into other objects such as boxes, bookends, vases, etc., or lapidaries cut and polish attractive stones used for jewelry.

Flower stone...star porphyry...snowflake porphyry...flowery gabbro...tweed porphyry...rosette gabbro...some of the descriptive names given to this type of rock found in many places on Vancouver Island. It has been described in many geological reports and articles are often written about it for "rock-hound" magazines. I think of one by Bill Hutchinson of Victoria entitled "A Fairy Story" in which he invented an Irish friend who called it an "Irish Daisy Stone" and made up a delightful story about how the "Little People" ...the original "Flower Folk" created the first daisy stones. Bill and Julie Hutchinson have written quite an informative booklet about Rockhounding on Vancouver Island.

Unlike Bill, I seem more inclined to think along more in-depth geological lines when it comes to the subject of rocks, but do agree that this particular rock does lead one to flights of fancy. Undoubtedly it has caused many experienced geologists and mineralogists to flights of hypotheses in their research and study towards understanding the physical and chemical changes which resulted in the formation of the "flowers".

This rock is usually referred to as rosette glomeroporphyry. Probably an adesite porphyry...possibly a modification of textures of this rock resulting in clustering of phenocrysts of feldspar into small groups of rosettes. The groundmass is usually felsitic, dense and without cellular openings. The lighter groundmass may be feldspars, hornblende and/or biotite. The darker groundmass may be feldspars and augite. It is found generally in the interiors of thick flows, dykes and intrusive rocks. These are notes from my notebooks.

These rocks are not abundant, but are widespread throughout the Karmutsen formation. This name was given to the oldest part of the Vancouver group by Selwyn (1872) for the Vancouver Island Crystalline Series, and was further defined by Dawson (1887). The Karmutsen formation is mostly submarine basic lavas and related rocks, and was named by Gunning (1932). This thick accumulation of Basaltic pillow lavas and related clastics, dykes, sills and limestones etc are found all over Vancouver Island, the Queen Charlottes and adjacent islands off the Coast of British Columbia. They are considered to be Triassic and Lower Jurassic.

Karmutsen rocks which are "coarsely porphyritic with single crystals or star-like clusters of white to light green feldspar in an aphanitic dark coloured matrix" are rare. These rocks are now considered to occur in sills, although a Geological Report on the Queen Charlotte Islands mentions at least one instance in which these rocks are known to be pillow lavas, however I feel that this must be an exception. These rocks are more likely to be a diabase which is certainly quite similar to pillow lava in texture and mineralogy. However, unlike pillow lavas the diabases do have phenocrysts or glomerophenocrysts of plagioclase, and pyroxene phenocrysts are common in some specimens. In these rocks amygdules are often present, which may be composed of chlorite or quartz and chlorite if they are relatively unaltered; but more commonly they are composed of pumpellyite, prehnite and clinozoisite. These rocks are highly chloritized, and some amygdules show a zoned growth and look like rosettes or bladed growths and would represent either small crystal-bounded amygdules or, less likely clots of devitrified glass. So, you do have different kinds of "flowers" or "stars".

I have noticed that the latter kind of rock often shows up near mineral deposits, i.e. Western Mines, the abandoned Argonaut Mine (Iron River), near mineralized areas of the Chemainus River Valley, near Texada Iron Mines, etc.

In the Sicker formation (ref. memoir 96, Sooke & Duncan Map Area, Clapp & Cooke, G.S.C. 1917) mention is made of rocks called gabbro diorite porphyrite, which forms sills,

dykes and irregular masses, and their textures are sometimes described "from fine to medium grained porphyritic rocks with feldspar phenocrysts that frequently have a tendency to radial arrangement". I believe this to be a rock we often find in the Chemainus River and adjacent areas. It is not nearly so striking as the flower rock found near Buttle Lake, which, to me, is the most beautiful of all this type. The Chemainus River "flower stone" is mostly grey phenocrysts on darker grey matrix, but it does weather whitish on exposed surfaces, but this weathering would disappear upon cutting and polishing. The Buttle Lake variety has beautifully oriented "flowers" which are whitish against a wonderful dark green background. Some of the flowers are large and others are arranged in a sort of circle reminding me of galaxies in a night sky, and fill me with the same wonder and awe as I feel when looking up into the sky at night by our campfire, trying to count the man-made satellites orbiting so far above us.

What miracle of nature has caused this rock to form like that? I wrote to Stan Leaming at the Geological Survey Offices in Vancouver some time ago expressing my curiosity, and he kindly replied as follows:

"The question of orientation of phenocrysts in glomeroporphyries has not been satisfactorily explained. There are two or three theories from which you may choose the least objectionable. In one, it is assumed that the phenocrysts were formed early in a melt and drifted into groups presumably under some sort of self attraction prior to freezing of the magma. Or you may prefer the idea that the porphyry was originally homogeneous but suffered later partial melting which destroyed the phenocrysts in selective areas. If you mark a piece of paper with phenocrysts like this:



and then erase patches to simulate melting, you will produce the effect.

"These ideas contributed by Dr. James Roddick of the staff here (Vancouver) do not satisfactorily explain the "snowflake porphyry" of Vancouver Island because these glomeroporphyries have feldspar crystals radiating from a center. I,

therefore, personally reject both these ideas in regard to the "snowflake" variety. What is involved of course is complex physical chemistry for which popular explanations would be at best only a vague and muddled generalization. It seems to me that any great fluidity in the environment of the phenocrysts would not permit this type of segregation of crystals about a center. Therefore, the crystals must have grown in a partly solid stage in the cooling history and continued to grow by a process of diffusion whereby those parts of the liquid which became depleted in the necessary elements (lime and alumina) by the growth of the crystals, were replenished from adjacent areas. "The difficulty is in explaining how the process operates in a heterogeneous manner. This, I think is a complex function of original temperature, spatial relationships, size and shape of intrusive mass, speed of intrusion, chemical relationships, chemical composition and who knows what else. The net result is that crystals do start to grow in the liquid around centres in a heterogeneous distribution and those getting a head start grow at the expense of those which might have developed nearby because of the flow of elements replacing those used up in the growth of the crystal. This diffusion process is similar to that which results in the growth of garnet or staurolite in metamorphic rocks."

All this, you will say...if you are still reading...is too difficult to understand. This is the problem when one is asked, what kind of rock is this? Just how far are you supposed to go in your answer? I readily admit that I find it difficult to follow Stan Leaming's explanation, but all rocks fill me with an inexorable curiosity, and I find myself delving deeper and deeper for information, until I find myself in too deep, beyond the limits of my background and education.

To learn all one can about "reading rocks", about the geological history of our earth's crust, is very rewarding. To a naturalist this may seem "dead" compared with the study and enjoyment of flora and fauna, however where would any of us, or any plant or animal be if we did not have rocks?

BIRDS AND PLANTS OF FIJI

Jean and Neil Bourne

In June 1975 we were sent by C.I.D.A. (Canadian International Development Agency) to Suva, Fiji for 18 months. The following is a brief account of some of our bird and plant observations during this 18 month period.

Fiji, or as they are sometimes referred to the Fiji Islands, is a group of 300-500 islands of varying sizes which lie between 15 and 20 degrees south latitude and 177 west to 174 east longitude. About 100 of the islands are permanently inhabited and the total land mass of all the islands is about 7,100 square miles (slightly more than half the area of Vancouver Island). The largest island, Viti Levu, has an area of 4,011 square miles; the major portion of the population resides here and the capital, Suva, is located on the south east side of this island. It was on Viti Levu that we did most of our bird watching and general nature study.

Viti Levu is quite mountainous, the highest peak is Mount Victoria at 4,341 feet. Highlands occupy much of the central part of the island and the coastal plain is generally quite narrow. Extensive areas of mangrove swamps occupy low lying parts of the coast. Rainfall varies greatly on the east and west sides of the Island. Suva is on the east or windward side of Viti Levu, is in the path of the southeast trades, and rainfall ranges from 120-160 inches per year; in the hills it may be over 230 inches. On the west or lee side of the Island rainfall ranges from 70-90 inches. This difference in rainfall has a great effect on the type of vegetation on the two sides of the Island; on the east side impenetrable jungle goes to the top of the hills, on the west or dry side it is a grassland-savannah type of vegetation.

The number of species of birds found in Fiji is quite limited; only 68 species of land and fresh water birds have been recorded and nine of these have been introduced. In addition to these resident birds there are a few species of migratory waders and several species of sea birds. Some species are restricted in distribution to only a few islands and at times quite small islands. Further there are a number of subspecies of some species and the plumage may be markedly different in the subspecies from island to island.

In retrospect I think one of the things we remember most about bird watching in Fiji was that except for the waders the bird population was the same throughout the year. Different birds could be seen in different parts of the island or at different elevations but there was no migration.

The three commonest birds we saw during our stay in Fiji were three introduced species; two species of mynah birds and the red vented bulbul; all three have been introduced from India. The Indian or brown mynah has a yellow patch of skin about the eye and is very common in cities and around houses. The jungle mynah is more grey in colour and has a small crest at the base of the bill and occurs more in open areas and fields. The other common introduced bird is the red vented bulbul, a bird of about the size and build of a towhee, generally black in colour with a crest on the head, white rump, greyish abdomen and red under the tail coverts. They feed to a large extent on fruit and managed to eat most of the guavas on our tree before we got them. The rock dove is common as is the Malay turtle dove, a bird slightly larger than our mourning dove and it has a broad black band spotted with white around the neck. The starling, so common here, occurs on one or two of the outer islands but has not reached Viti Levu. The Java rice finch was common around Suva; frequently one sees them for sale in pet stores in Canada. Strawberry finches were very common; they are about four inches in length and during breeding season the males become bright crimson, much spotted with white.

Two of the commonest native Fijian birds around Suva were the orange-breasted and wattled honeyeaters. The orange-breasted honeyeater is the smallest bird in Fiji; black upperparts, yellowish white underparts, with a scarlet crown and a long decurved bill. The wattled honeyeater is about eight inches long, olive in colour with a long decurved bill. It is very bold, raucous and quite a mimic. Frequently we were awakened at 5:30 in the morning by a wattled honeyeater who sat in the frangipani tree outside our bedroom window and called out loudly and harshly; "Hubert, Hubert, Pick it up, Pick it up, Trick or Treat, etc."

Collared lories, which are small parrots about eight inches long, have brilliant green upperparts, red underparts, purple crown and lower abdomen, and a red and green collar, are very common and always made us feel when we saw them that we really were in the tropics. Frequently we saw red-breasted musk parrots which are about 18 inches long and have predominantly green upperparts and red underparts. When flying they are quite noisy. The plumage of this parrot varies from island to island.

Another common bird about Fiji is the red-headed parrot finch; a bird of about four inches, bright green in colour with a red head and tail.

White-rumped swiftlets are very common and resemble the chimney swift, common in the eastern part of Canada. The white-collared kingfisher is fairly common and easily identifiable as a kingfisher but has much prettier colouring than our belted kingfisher. The Pacific swallow closely resembles our barn swallow and is quite common, particularly on the western side of the Island. Another swallow, the white-rumped wood swallow, dark green-black above and white below, is a heavily built swallow and very common. Another common bird is a flycatcher, the Vanikoro broadbill, a pretty bird about five inches in length, dark blue-grey above with rich orange-buff underparts. Two other birds we saw fairly regularly were the Polynesian triller and the spotted fantail.

The harrier, which closely resembles our marsh hawk is common and could often be seen sailing over fields. We saw the Fijian goshawk on several occasions and a barn owl on one occasion.

Along the waterfront the reef heron is quite common. This heron occurs in two colour phases; the dark phase which is grey-blue and resembles our great blue heron only it is slightly smaller and the white phase which looks like a smallish egret. Crested terns are common and we frequently saw frigate birds. On the west side of the Island we saw noddy terns and brown boobys.

The only migrants which occur in Fiji are waders and during their summer (our winter) wandering tattlers and golden plovers are very common. Ruddy turnstones and bar-tailed godwits, although common occurred in smaller numbers than the other two waders.

In addition to our bird watching we made an attempt to identify some of the trees, shrubs and plants which abound around Suva.

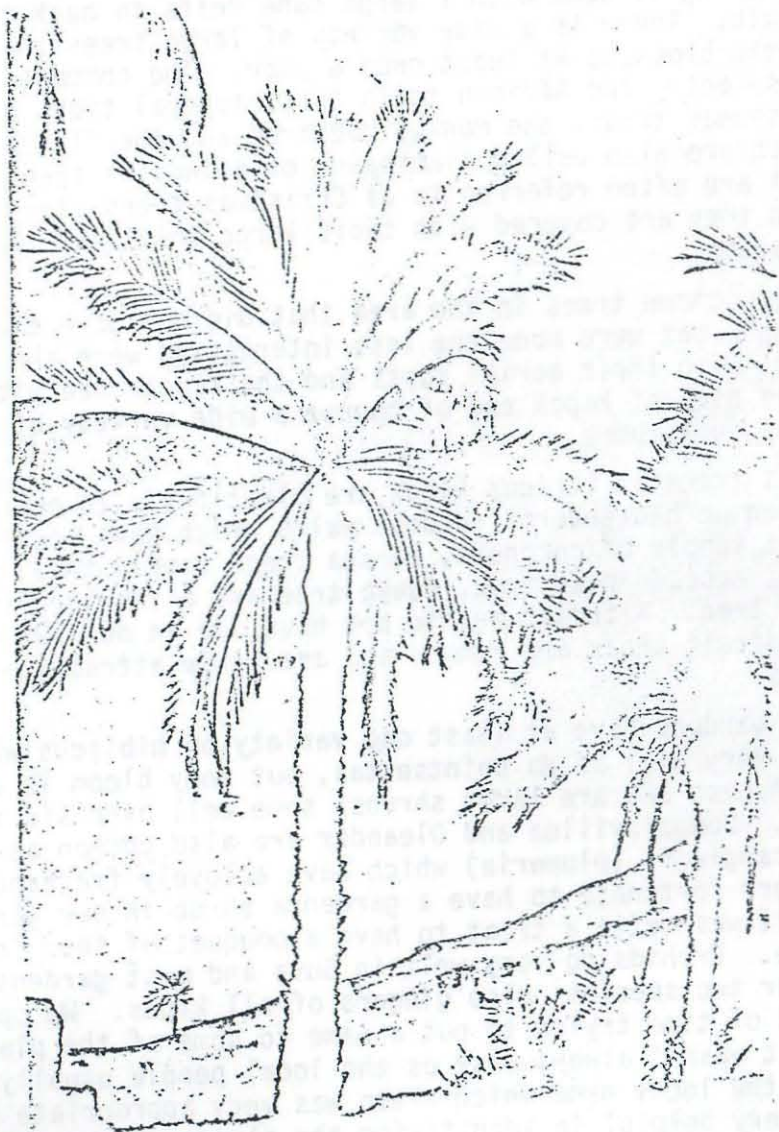
As we have said the warm temperature and heavy rainfall around Suva produces a very lush vegetation. Most of the gardening is done with a large cane knife to hack the overgrowth. There is a wide variety of large trees that bear exotic blossoms at least once a year. The commonest of these being the African tulip tree, several types of cassia or shower trees, the monkey pod tree and the flame tree which are also called flamboyant or poinciana trees and in Fiji are often referred to as Christmas trees since that is when they are covered with their large brilliant red blossoms.

Other common trees in the area that did not have exotic flowers but were none the less interesting were the banyan trees with their aerial roots and the kapok tree with its large pods of kapok and of course a wide variety of palm trees everywhere.

Fruit trees of various kinds are plentiful. In our own garden we had several coconut palms which gave us a constant supply of coconuts, banana tree, pawpaw tree, mango tree, avocado pear tree, guava tree and a very prolific lime tree. Although we did not have one in our garden, breadfruit trees are common and are large attractive trees.

Most gardens have at least one variety of hibiscus which grow very well as do pointsettas, but they bloom in July and August and are large shrubs, some well over six feet high. Bougainvillea and Oleander are also common as well as frangipani (plumeria) which have a lovely fragrance. We were fortunate to have a gardenia shrub in our garden and it was quite a treat to have a bouquet of them in the house. Orchids do very well in Suva and most gardens had one or two species; also gingers of all kinds. We spent a lot of time trying to put a name to some of the plants and it wasn't always easy as the local people usually only knew the local name which often was very appropriate but not very helpful in identifying the plants. Everything seemed to grow on a very large scale, even little marigolds produced plants over three feet high.

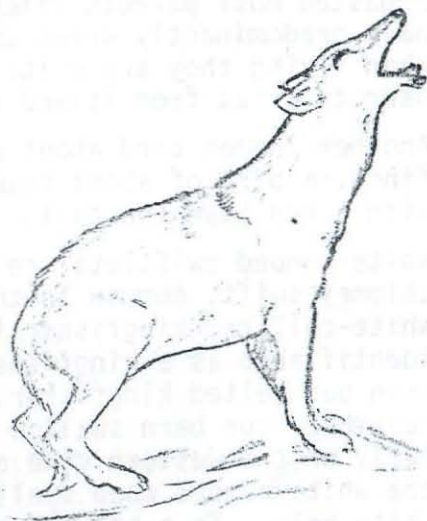
Our 18 month stay in Fiji was most enjoyable and we hope that some day you people also will have the opportunity to visit this wonderful and most interesting part of the world.



THE VANCOUVER ISLAND WOLF

Dave Kerridge

The Vancouver Island Wolf has been considered as one of the rare and endangered species of British Columbia for some time. Only a few years ago, there were very few packs known to exist in any of the populated portions of the Island and this resulted in the establishment of control regulations to afford protection for these animals. This protection seems to have given these animals the chance they needed as they have been able to make a marvelous come back and increase their populations to the point where they are becoming somewhat of a problem in various areas.



The real problem is that there are no supporting studies on the status on this animal. Is there such a thing as a Vancouver Island Wolf? Nobody really seems to have the answer to this question. This became obvious approximately four years ago when a wolf population on Cortez Island was causing havoc with a local farmer and the Fish and Wildlife Branch were called in to attempt to rectify the problem. At that time, poison was used to cut the population of the pack down to a more reasonable size - reasonable in that it was no longer as great a threat to the farmer. There was considerable condemnation of the Branch over its use of poison as a means of control in this situation and much concern expressed over the possibility that these wolves may be of the Vancouver Island Wolf type - a rare and endangered species.

The Branch forwarded a few skulls to the Provincial Museum for identification as they claimed that there was a possibility that these were not true wolves but were really wolf-dog crosses. The Museum was unable to give any positive identification indicating that no one really knew what a Vancouver Island Wolf was.

As the population has made such a fantastic comeback, new problems are arising which will require new controls to be applied. In certain parts of the Island the number of wolves has become so large that it is having a serious effect upon the deer population. The result is that the wolves are being forced to move closer and closer to human settlements for their livelihood.

A recent example was seen at Campbell River where a wolf inside the city limits was being fed dog food on a regular basis by young children. This animal was immobilized using a dart gun and brought to Nanaimo for the purpose of radio collaring as well as other tests. Under the auspices of the Fish and Wildlife Branch, an attempt is being made to study the protein complement and the genetic makeup of this animal. The intentions are to make a comparison between this animal and a mainland wolf in an attempt to discover whether or not differences really exist? This animal was later released in the Sayward area and has since come to its end at the hands of a local mobile home park owner. The wolf kept coming into the park and feeding from the dishes of the resident dogs. Although it behaved much like a pet, there was concern that the animal may turn upon young children in the area.

Once an animal has been placed on the 'rare and endangered species' list, it is difficult to remove the animal from it even if the population becomes well established once again. However, if the populations continue to grow under the protection of the regulations concerning rare and endangered animals, they will soon present such a problem that strict controls will have to be applied in order to keep the populations in a healthy and stable condition.

As a naturalist, one should be aware of the need for certain controls but be prepared to demand that proper studies be made of these populations before controls are applied. There is a great need for us to find out whether or not there really is a Vancouver Island Wolf - a unique and distinctive population of wolves found only on this Island. We should be supportive of proper and necessary controls being applied to these animals but demand that they are humane and well applied (not indiscriminant poisoning)

as these are necessary to maintain a healthy population. If the population becomes too large, the land area will not be able to feed and sustain it and we will end up with diseased and starving animals as well as more human confrontations. We can be assured that controls will be applied if the populations of deer and elk are adversely affected in any way. Let us do our part to see that these controls are not one-sided.

Long live the Vancouver Island Wolf !

BOTANICAL GARDEN

at the University of British Columbia

The history of the Garden dates back to 1912 when two acres of land were set aside on the Provincial Colony Farm at Essondale near Vancouver. In 1916, the collections established at Essondale were moved about 20 miles to the present University site. Professor John Davidson was appointed as the first Director of the Botanical Garden. The present Director is Dr. Roy Taylor.

The present gardens consist of 110 acres on the campus. Established components of the Botanical Garden you may wish to visit are: Nitobe Memorial Garden, the Faculty Club Rose and Rhododendron collections; and the gardens at the Graduate Centre, International House, Graham House, Cecil Green Park, Museum of Anthropology and Botanical Garden Office and Educational Centre; and the B.C. Native Garden and Alpine Rock and Scree Garden at the Main Garden site.

Forty-eight acres have been set aside west of the Thunderbird Sports Stadium at the south end of the campus for development as a new Botanical Garden centre. An exciting future building complex will house display conservatories, research, and teaching facilities that will be open to the public. Specialized gardens associated with the centre will feature plants of economic importance, an extensive collection of

Rhododendron species, Asian plants, alpine scree plants, and a collection of British Columbia natives. The University herbarium will be incorporated in the Administrative-Research complex.

