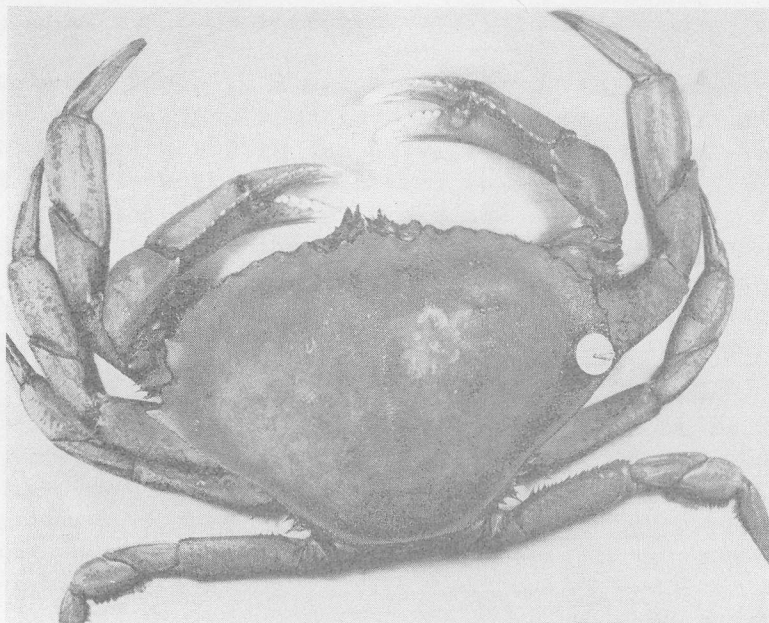


The
**VICTORIA
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(Comm. Fisheries Branch.)

Pacific Edible Crab (Tagged)

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OUR COVER

The commercial crab (Cancer magister), shown in the photograph, is sporting a plastic disc fixed in place by a pin of monel metal. The tag serves to identify this particular individual if and when it is recaptured. The information so obtained is valuable in piecing together the life history and perigrinations of these crustacea, data which are necessary before sensible regulations can be drawn up.

However, there is a serious catch to this method of keeping track of individuals. At intervals a crab sheds his shell together with the attached tag of course, so it is possible to collect short-term information only, by this method. Biologists have overcome the difficulty by fixing the tag to a part of the crab that is not moulted, namely the line of separation between the upper and lower shell. Attaching the tag in this position requires a bit more work but since it remains in place even though the crab changes its shell its effectiveness is greatly increased.

Early results from these tagging experiments in the Queen Charlotte Island area have been most encouraging. Some tags have been found in place after two years and recoveries of tagged crabs are beginning to give valuable information on movements, fishing intensity and other aspects of this fishery.

G. C. Carl.

THE FEBRUARY GENERAL MEETING

The guest speaker on this occasion was Mr. Willard Ireland, Provincial Librarian and Archivist, who gave us a history of the early botanical explorations of the Pacific Northwest. This proved to be interesting, and it had entailed so much research, that we are recording below a brief outline of his talk, aided by Mr. Ireland's notes, which he kindly loaned us.

It was in the years between 1737 and 1741 that a Russian

vessel under Bering first explored this region, the botanist being a German, Georg Wilhelm Steller. The next exploratory voyage on this coast was made by the famous navigator Captain Cook, the botanist on this occasion being William Anderson, who died a few months after his arrival here.

In the year 1791 the Spanish Captain, Malaspina, with botanist Thaddeus Haenke, made a collection of some of the native flora. A year later another Spanish vessel under Quadra reached the shores of what is now British Columbia. With him was a scientist and botanist named Jose Mariona Mazino, who collected plants, birds and mammals. In this same year Captain George Vancouver made a thorough exploration of the entire coast, having with him the Scotch botanist Archibald Menzies. Both these men had been here previously. Vancouver as a midshipman with Captain Cook, and Menzies with Colnett in 1786 in the vessel 'Prince of Wales'. Menzies made the most complete inventory of the Pacific flora to date, working in the area for three summers.

Two other botanists, both with Russian expeditions, one in 1803 and the other in 1816 visited the coast.

In the year 1825 there arrived in north-west America the well-known botanist David Douglas. He spent two years on the Pacific slope, returning to England via Hudson's Bay in 1827. Two years later he returned, spending nineteen months in California, and slowly worked his way northward, traveling about seven thousand miles, mostly on foot, through Idaho, Oregon and Washington. Part of his travels took him up the Okanagan Valley, to Kamloops, Clinton, Lac la Hache, Fort George to Fort St. James, his ambition being to go north from there as far as Alaska, but ill health and the advice of the Hudson's Bay officials turned him south again. Coming down the Fraser River near Quesnel, his boat overturned and he lost his entire collection of plants and all his journals. In spite of this mishap he shipped to England altogether 499 species, there often being twelve to twenty-four samples of each.

Contemporary with Douglas were the botanists R. Brown, W. J. Hooker and John Scouler. To one mountain Douglas climbed in British Columbia he gave the name of Brown, another close by, he called Hooker, names by which they are still known.

The journals of Brown have recently been brought to light in Scotland, where his descendants live, and, at the present time, these papers are at the archives on loan. Mr. Ireland

has asked the Government to purchase them, but without success, and it has been suggested that, through public subscription, these valuable papers be acquired permanently for the Provincial Archives.

A. R. D.

SOME EARLY RECORDS

Judging by the number of native plants already in bloom, this may be one of our earliest springs in several years. On New Year's Day I recorded 13 hardy over-wintering plants in flower. Since then, the following have been added to the list with the help of several observers:- thyme-leaved speedwell, skunk cabbage, blue-eyed Mary, Scouler's willow, bird cherry, woolly sunflower, miner's lettuce, hazel, satin flower, western buttercup, early saxifrage and salmonberry.

Observers in this vicinity stand a fair chance of locating some unusual plants. Here are the names of four specimens found during the past season, together with comments on them by Dr. A. E. Porsild, Chief Botanist, National Herbarium, Ottawa, and Mr. J. A. Calder, Associate Botanist, Plant Research Institute, Ottawa.

1. Meadow pea or vetchling (*Lathyrus pratensis*)
 "our first record west of Ontario" - (Calder)
 "we have no Canadian specimens from west of Ontario" -
 (Porsild)
2. Wild toadflax (*Linaria canadensis*)
 "we have no material from British Columbia in our
 herbarium" - (Calder).
3. Shepherd's cress (*Teesdalia nudicaulis*)
 "as far as I know, your record and two others are the
 only ones for Canada - (Calder).
 "your collection would appear to be the first from
 Vancouver Island" - (Porsild).
4. Fluellen (*Kickxia* sp.)
 "differs from all species of which I have descriptions.
 It is almost certainly a recent introduction. I hope
 you will collect more material if it reappears next
 year" - (Porsild).

Specimen #1 was brought to my attention by Mrs. J. R. Parris;

Specimen #2 by Mrs. A. W. Cameron.

M. C. Melburn.

FRESH-WATER MOLLUSCA
by W. MacKay Draycot

"You are taking a big risk going to that swamp alone." The advice was well meant. Winter was in the offing and this was my last chance. A narrow stream issued from the swamp; samples were obtained of the mud, decaying leaves and twigs at intervals along the banks for study at home. Swamps can not be regarded as playgrounds and what appears to be solid ground is not always so. A sudden descent to the waistline cools one's ardour for further investigation; and what a muddy smelly mess for folks to gaze at, as one must forego a ride and walk home, miles away! My friend was right. Never go to a swamp alone.

However, the result of the venture was worth the wetting. The underside of the lily pads gave me specimens of Physa and Gyraulus. The brook samples were inspected by using a watchmaker's eye-lens thus leaving both hands free. With a bodkin or darning needle you commence separating the mixture and the variety of living specimens will truly astound the beginner. In my assemblage the wriggling nematodes, or threadworms, outnumbered the bristleworms, Daphnia, and other creatures. But molluscs were the main object of my search.

For clams one would naturally go to a marine beach. If you told your unenlightened friends you were going to a stream to get some, or to a pond, they would think your mind was adversely affected. Bivalves do occur in fresh-water as evidenced by the presence of Pisidium casertanum Poli in the brook. Their adult size is only a quarter of an inch, being similar in appearance, but not size, to the local marine mollusc Parvilucina tenuisculpta Carpenter. There are other species including Musculium, all midgets.

Another wee mite in the brook is Gyraulus vermicularis Gould, simulating a pinwheel firecracker. In some of the lakes you will find a larger form, Helisoma trivolvis Say, with other species. The fresh-water Gyraulus and the salt-water Spirobis are nearly identical in both size and shape.

Fresh-water snails bear resemblance to those inhabiting the sea though their shells are generally thinner. Among the beautiful amber snails to be found along the banks of stream and lake is Succinea rusticana Gould and other species. Nature has equipped this vegetarian with about 3,250 rasp-like teeth; other genera have many more. Some fresh-water limpets possess 12,000. We hope they are spared the agonies of neuralgia!

The giant of fresh-water snails is Limnaea stagnalis L. Colour yellow-brown and up to two inches long, his shell is delicately thin and when sucked out by an adversary it becomes a collector's prize, because of its translucent rich amber colour. A general feeder, he varies his diet with the flesh from the young of his species when they become too abundant. When this snail is caught in the act of destroying the larvae of the water beetle, Dytiscus, the adult beetle seemingly gets mad and eats him. An "eye for an eye ..." so to speak. Stagnicola palustris nuttalliana Lea is more gentlemanly than his cousin and though smaller is equally handsome. The most detested member of the Limnaea family is L. truncatula. Despised by sheepbreeders this half inch long snail is host for the common liver fluke, Fasciola hepatica, a deadly parasite of sheep, as the English sheepbreeder knows to his sorrow; the writer has not yet found one in British Columbia. Birds are not immune to liver fluke for they, like the sheep, eat land and fresh-water molluscs.

A snail whose ancestors took the wrong turn is Physa, and its cousin Aplexa hordacea Lea, who prefer to emerge from their shell on the left side instead of on the right. The highly polished shell of these species is in contrast to their usual environment for some species can survive in putrid water.

With no fish biting, a fisherman left his line in the water and went away. Returning later he pulled it in. Ah! bite! Expectation became a realization in reverse. He had hooked a three and a half inch long fresh-water mussel, the species being Margaritifera margaritifera fulcata Gould. This thin-shelled bivalve occurs in most of our British Columbia lakes, and some streams. In size contrast the miniature bivalve Sphaerium sulcatum Lamarck was found in the same lake.

Fresh-water mollusca are Nature's most useful scavengers and help to maintain purity of water, though they can not be expected to cope with all the cats and dogs thrown in to drown after mankind tires of their old age!

* * * * *

THE JUNIORS TAKE OVER

by Emily Sartain

Those of us who attended the Botany Group meeting Tuesday, January 26th, were much impressed with the talks given by the six Leaders of the Junior Branch of our Society.

RICHARD GLENDENNING, showing a keen interest in geology, described in a very interesting way each of the rock specimens he had on display.

NANCY CHAPMAN gave a delightful talk on bird nests, showing us real nests which she had collected, and describing in detail how each was made. These nests were a part of her collection of 76.

GERALD WALKER spoke on fungi and, in spite of the difficulty in keeping specimens fresh, Gerald had several there to show us.

GAIL MOYER had brought a specimen branch of white elm. She gave an account of its history, manner of growth, commercial value, etc. Gail also had some good drawings with which to illustrate her subject.

JERRY RUSHTON, who had spent two months last summer working at Manning Park, gave a very enthusiastic account of what can be done and seen in this beautiful Provincial Park. We felt ready to pack our bags and go.

JERRY also had on display an extremely well-made model of a forested area which included logged-off stretches, slash, a small settlement, and camping grounds on a lake-shore.

JOYCE CHOPE ended the talks with an interesting display of fossils, each of which she described very clearly, proving how much study she is giving to her favorite subject.

We, who were privileged to hear these young people, were impressed with the fine progress they are making in the study of Natural History. We are proud of them and we extend an appreciation to "Skipper" for the grand leadership he is giving members of the Junior Branch.

Mr. Freeman King then described methods of reforestation of the Douglas Fir being carried on in the Province to-day. Mr. King explained that, during a recent visit to the B. C. Forest Service Nursery at Duncan, he and his 'senior' juniors were shown how the seeds are collected, extracted from cones, cleaned, packed, sealed and refrigerated until required for use. We are much indebted to Mr. King for this very interesting and informative talk.

* * * * *

RAISING RED-LEGGED FROGS IN CAPTIVITY

by Richard Guppy, Wellington, B. C.

Vancouver Island is not richly endowed with amphibian life, and among the Anurans (frogs and toads) only three species are represented. One of them, the Pacific tree toad, Hyla regilla, is excessively plentiful; it is "the frog" of the casual observer on the British Columbia coast, its two congeners are seldom seen or heard by the uninitiated.

The big Northwestern toad, Bufo boreas, is very seldom seen, except in breeding concentrations, which may sometimes draw them in immense numbers. Such assemblies however, do not appear to take place more than once in a decade or so, in any one breeding place, so that they do not offer any reliable opportunity of getting acquainted with the toads. But there is one locality which I know of, the Forbidden Plateau, where Bufo toads can always be seen during the warmer months of the year. This does not refer to the "Lodge area", frequently visited by people who suppose that they are seeing the Plateau.

Our one true frog, the red-legged frog, Rana aurora, can always be found during the breeding season, if one knows where to look. No large numbers are seen together, sometimes only two or three pairs, but the breeding is a regular annual affair. I know of several of these spawning places; they do not conform to any uniform pattern. One is part of a lake, another a tiny brushy pond, which sometimes completely dries up before the end of summer. Frogs spawn in these places every year, myriads of similar bodies of water remain perpetually frogless. Some special mineral in the water is presumably responsible.

Most of the frogs leave their breeding places as soon as they have spawned. During the remainder of the year they are most often encountered on the banks of clear streams. The young growing frogs also spend most of their time in such places. This habit doubtless has led many a naturalist completely off the track, when searching for the tadpoles.

I have kept red-legged frogs in captivity for about seven years now. In fact there are so many loose around that I do not know, when I pick one up, whether it is a recent escaper, or just one that has stuck around of its own free will. That I am responsible for their presence is evident, since I never saw one prior to my bringing them in. These frogs will spawn if given moderate freedom, in any little pond. When given no other choice they apparently will make do without the mysterious essence, whatever it is,

which they demand in nature. My first spawning was from a lone female, confined with about five partly grown frogs, in an eight foot by ten foot pen. The eggs were, of course, infertile. This spawning was very late, about the end of April, suggesting that the frog had waited for a time in the hope of an eligible mate turning up. Subsequent spawnings were in early March. By that time some of the young male frogs had reached adulthood, so that the eggs were fertilized and developed into myriads of tadpoles.

Contrary to popular notion, tadpoles are not easy to raise. Even the adaptable Hylas will fail to reach maturity if overcrowded or underfed. You cannot, as popular works will have us believe, put a bunch of tadpoles into a fruit jar and watch them turn into frogs. Red leg tadpoles are even more difficult. Those which I left in the pond where they were spawned, made out fairly well, but were eaten by the adult frogs as soon as they left the water. Others, that I tried to keep in aquaria, dishpans, and other containers, simply languished along until winter, without making much growth, and then slowly died off.

I have learned by experimenting how to raise them. The main requirement seems to be water extremely rich in micro-organisms. Incredible as it may seem, I achieved the best results in the end by using poultry manure, a good shovel full in twenty gallons of water. I let this simmer down for a few weeks, but it was still pretty vile when I put in the tadpoles. Nevertheless, they did well, at least they transformed into frogs a little later, and were a little smaller at that time, than the tadpoles in their ancestral pond.

I have not by any means solved all the mysteries connected with these tadpoles, nor can I make them grow as large or as fast as those in the ponds chosen by the frogs. High temperature will force their development a bit, but does not speed up their growth; they are then smaller when they transform, than those grown in cool water. They seem to do better in concrete ponds than in natural ones, in fact I begin to suspect that the calcium content of the water may be the key to the whole mystery. Under optimum conditions they will transform during July. If forced to linger until August or even September, they will still become frogs that are viable and can complete their growth. Even if still untransformed in October, they may, if nearly grown, winter as tadpoles and eventually become frogs. Severe winter weather will kill them unless the water is flowing. One fact I have definitely ascertained, cool con-

ditions never delay the metamorphosis of these tadpoles until winter overtakes them. I am sure that a water temperature of no more than 50°F. would insure their reaching maturity in good time. Serious delay is always due to malnutrition, and probably never occurs under natural conditions.

* * * * *

BIRD NOTES

by Alan Poynter

The first unusual bird to turn up in our area in 1960 was a slender-billed shearwater which was seen at Clover Point by Mr. and Mrs. Barry Morgan and the writer. On February 9th Mrs. Bousfield located a pair of red crossbills working on a half completed nest. A second look on the 16th showed one of the birds in residence. Although this is an early nesting bird, I think it is slightly premature.

Black brant have been seen in small numbers off our shores for a month now and appear to be increasing in numbers rapidly. In the past few years this bird has been greatly reduced in numbers and with still many days left of the shooting season the early migration along the Pacific shores might prove to be detrimental to the breeding population.

March at last, and once again the migrants. Violet-green swallows by the fifth of March, Audubon warblers by the 23rd of March, rufous hummingbird, bandtail pigeons, purple martins, lutescent warblers and white-crowned sparrows in the last week of March. So clean your glasses, get your books out and let us hear some reports!

By Mrs J.A. Berry, Royal Oak

One January afternoon we were puzzled by a persistent drift of small particles past our living-room window, and at first supposed it to be windborne material from a neighbor's bonfire. Going outside we saw the source was the top of a fir tree, and were happy to catch glimpses of a flock of pine siskins feverishly dissecting the cones. There were probably fifteen of them, no bird still for more than a moment, and all sounding their characteristic wheezy note. No bird, I think, could have outdone those pleasing little creatures in their amazing vitality and purposefulness. We have been favored by several other visits since, which are particularly welcome as making some amends for the regrettable scarcity of other species this winter.

BIRD NOTES

by A. R. Davidson

In the February issue there was a short item on two white-throated sparrows being found in a grain barge at Yarrows.

The sequel to this story is rather interesting. On February 4th the writer had a phone call from Miss Baird, one of our members, who lives at 754 Richmond Avenue, to the effect that a white-throated sparrow had been coming to her feeding tray regularly for some time. Investigation proved that this bird was indeed a white-throated sparrow, a bird common in eastern Canada, but practically unknown here.

It appears that on December 15th last a canal boat from the St. Lawrence River arrived at Ogden Point, where it had the super structure removed and other work done by the Capitol Iron Works, after which, on January 7th, it was towed to Yarrows for re-fitting as a barge.

When the men went into the hold at Yarrows they found four sparrows (not two) which appeared to them somewhat different from the sparrows they knew here, and reported their find to Mr. Hugh Mackenzie, who is in charge of the yard. Mr. Mackenzie informed Ralph Fryer an old friend, both having lived in Courtenay. Ralph went down to the barge, but the birds had apparently flown.

And now a white-throated sparrow has turned up. Whether this one sparrow travelled by barge or whether it is a migrant, we do not know. It was certainly feeding at Miss Baird's before Christmas, and almost certainly there were four in the barge on or after January 7th.

We are now keeping a lookout for more of these eastern sparrows.

BY DAVID STIRLING

On February 7th we made a trip to Salt Spring Island, Mr. & Mrs. Barry Morgan, my wife and self.

The highlight of the excursion was a most notable gathering of raptors. No less than three golden eagles were seen; also four bald eagles, three red-tail hawks, and one Cooper hawk, all of them soaring over the cliff face of Mount Maxwell.

BY A. H. MARRION

Mr. Armitage of Anderson Lake on the P.G.E. states that birds are very scarce this winter. When asked for the reason, the Indians stated the mild weather of 1959 provided sufficient food for the birds so they were not seeking round the habitations.

JUNIOR JOTTINGS

Freeman King -

The junior group have been very active during the past month. Our annual party held on January 23, at the Scout Hall (Shelbourne St.) was more than a success; fifty-nine children and about 125 parents turned out. The stunts, games, etc. were run by the junior leaders; the Group displays were more than excellent and caused a lot of interest.

Recently we have had to break the Junior group into two sections as it was getting too large to handle efficiently. We have now arranged that those over 12 meet one Saturday and the younger ones the alternate Saturday; the junior leaders will still be on hand each week.

During the month we have made trips to Niagara Canyon where the water falls drop for over 100 feet. A trip to Witty's Lagoon, Metchosin, was more than interesting. Sea shore animals and birds were found and observed. Salmon-berry was seen in bloom; this is one of the earliest dates it has been recorded.

A trip to the top of Mount Douglas via the old trail from the north was made. We noted that there is an abundance of yew trees and some exceptionally large arbutus growing in the area.

The Saturday that was so wet we went to the Pioneers' Cabin at Saanichton through the courtesy of the Pioneer Society and inspected the old-time exhibits that are displayed there.

Some of our members who are "rock hounds" offered to help collect rocks of the Saanich area for their collection.

The six group leaders gave a talk at the latest meeting of the Botany section and I want to thank them for doing an excellent job. We are open for a few new members in the older section.

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NOTICE OF MEETINGS

1960

- Tuesday,
March 8th: GENERAL MEETING - at the Douglas Building Cafeteria at 8 p.m.
Guest Speaker will be Major R.J. Kerfoot, of the P.P.C.L.I.
His subject will be some flowers and biblical sights of Palestine, illustrated by slides.
Major Kerfoot was recently in the Middle East as Truce Observer with the U.N.O.
- Tuesday,
March 15: GEOLOGY GROUP - at the Provincial Museum at 8 p.m.
Speaker: Mr. A. H. Marrion
Subject: "Nanaimo Series of Cretaceous Age"
- Tuesday,
March 22: BOTANY GROUP - at the Provincial Museum at 8 pm
Professor J. A. Cunningham will speak on Algae.
- Saturday,
March 26: BIRD FIELD TRIP - meet at the Monterey Cafe at 9 a.m., or at Witty's Lagoon parking area at 9:45 a.m. Bring lunch. This is the beginning of the spring migration.
Leader: Alan Poynter. Phone EV.4-8330.

The Juniors will meet each Saturday at the Monterey Cafe at Hillside and Douglas Streets, at 1:30 p.m. for field trips.
Leader: Mr. Freeman King.

Anyone who would like to join these trips is very welcome. Mr. King can be contacted at GR.9-2966.

THE VANISHING BIRDS: Observers in various parts of British Columbia, including Vernon, Vancouver, Anderson Lake (near Lillooet), Comox, and Vancouver Island in general all report a shortage of the small birds. In Wilf Bennett's column in the Vancouver Province, Mr. W. H. Hughes, the bird leader for the Vancouver Natural History Society states he finds the present scarcity has been building up for the past two years, and that a disease is responsible for at least a part of it. Birds he banded two years ago were infected, and when recaptured a year later he found the disease had progressed. This year none of the infected birds turned up. This, he says, may be a recurrent disease, or it may be the result of our spreading so much anti-insect and anti-weed poison.

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