

Queen Anne's Lace

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delay is caused by anything other than slow postal delivery,  
she is in the best position to straighten it out in the least  
time.

*Thanks,  
Mrs. Jean D. McInnis,  
Membership*

*A special welcome to the many new members to the Victoria  
Natural History Society. We know you will enjoy the Winter  
Naturalist's programs and activities.*

*Do come and let us meet you. Be at our next General  
Meeting, Tuesday, November 11th, at 8:00 p.m. and come  
join us on our next field trips and programs. You'll  
find them exciting, interesting and friendly.*

DARICUS CAROTA L. - QUEEN ANN'S LACE

Queen Ann's Lace is native to Greece. It is widely seen along the  
roadsides on Vancouver Island in late summer.

Queen Ann's Lace is a flat-topped flower-cluster with a reddish-  
purple variant, attractive to insects. It has carrot-like foliage. Its  
Latin name is Daricus Carota - indicates that the plant is a wild  
ancestor of the carrot.

*Annette Gardner*

Annette Gardner was born in Prince Albert, Saskatchewan. Her  
parents were from Denmark and her father was a contractor. The family  
moved to Victoria in Annette's junior year of high school, and she  
graduated in art at Victoria High School.

Annette served with the Canadian Army, in the Militia Rangers,  
doing book work, from 1944 to 1946. She then attended McDonald College  
in Montreal, majoring in remedial therapy through art. She also attended  
Banff School of Fine Arts, studying with Dr. Waller Phillips

Annette married John Gardner, who was a printer, but soon became  
a teacher of voice and piano. They lived in North Vancouver, B.C.  
Annette taught art classes in remedial therapy, and also worked with  
the T.B. Home Service. The Gardners were both active in the Vancouver  
Natural History Society. John was Society Photographer and was on the  
executive board.

The Gardners moved to Victoria in 1973 and are active members of  
the Victoria Natural History Society, and belong to the Tuesday Birders.

Annette was attracted to the lovely Queen Ann's Lace, while on a  
field trip. She picked it, and painted it for our cover. Annette is  
well known for her wildlife drawings and pen-and-ink floral pieces,  
especially those she has done for notes and cards for commercial use.

COVER

QUEEN ANN'S LACE - DARICUS CAROTA L.

*by Annette Gardner*



## BIRDS AND THE OCEANS

by Dr. Ian McTaggart-Cowan

The sea has, since very early in the evolution of birds, offered many opportunities to any species of bird able to adapt to its many challenging physical characteristics.

The advantages awaiting for the successful avian adapter included: 1) to be provided rich and varied food sources; 2) freedom from competition from the abundant and diversified land birds; 3) sea bird islands offered also relief from the normal land-based predators - especially nest predators.

However, the problems to be surmounted in adapting a land bird to marine living were many. In contrast to the land/air environment, the sea is more dense, and though salty, physiologically as dry as a desert; anoxic; has a different refractive index than air, thus complicating vision through water; cold, but constant; windy, and without shelter, and relatively featureless for navigation purposes.

Birds probably moved into the sea in several different ways. Shore birds, waders and gulls, fed along the beaches but adapted also to swimming; others became surface pickers but still nested ashore. Some of these later readapted to a predatory way of life to fill the niche unoccupied by the hawks and owls on land. They are the jaegers, skuas and giant petrels.

A few orders of birds have members that have divorced themselves from land except that the laying of eggs, hatching them and rearing chicks, still require of all birds a return to land. No bird has been able to adapt to the sea as completely as have some mammals. The most highly specialized birds for ocean living are the penguins and the tube-nosed swimmers such as albatross, shearwaters, petrels, etc.

Adaption to the physical challenges of the sea are many and fascinating - a brief summary of challenges and solutions includes:

Water Density: a fusiform body, well streamlined; swimming by legs moved far aft; the proportions of leg parts changed to give shortened rear segments of the leg; changes in the tibial segment; lateral flattening of the bones, and full webbing of the feet. The penguins, the fastest of the swimming birds, though having webbed feet, swim entirely by the use of the wings, using a unique driving mechanism that gives thrust on both up and down strokes. The penguin wing is uniquely flattened, with short arm segment and long "hand".

Anoxic Medium: Birds have adapted to develop:

- (a) specific gravity control
- (b) reduction of blood flow to non-vital areas when diving
- (c) breathing trigger mechanisms involving reduced sensitivity to CO<sub>2</sub>
- (d) oxymyoglobin in the muscle tissue supplements the oxyhemoglobin during the activity of diving; as well, diving birds can use the glycogen to lactic acid energy route
- (e) reduction of heart beat rate and cardiac output as well as redistribution of blood flow to favour vital areas. Total immediate energy demand in a prolonged dive can be reduced by 90%.

Salty with no fresh water to drink: The birds' normal excretory product is less water demanding than normal excretion. Salt water is drunk and the salt extracted and pumped out of the body chemically by means of nasal salt secreting glands.

Cold but constant: A marine bird is fully insulated by feathers so that the water never reaches the skin. Heat loss is largely through the feet and legs and these have complex heat exchanger arrangements of blood vessels which can maintain sensitive control of the amount of heat which must be lost.

Sight while submerged: There are at least three different ways in which the eyes of diving birds have adapted to the problems of fluid to fluid passage of light into the eye:

- (a) many diving birds pull the third eyelid over the eye and look through a clear window in it just as we use a diving mask or goggles
- (b) an easily deformed lens with a powerful sphincter muscle in the iris can provide 40-50 diopters of accommodation versus 2-3 in the young human
- (c) eccentric lens, with a retired "sensitive spot" for vision, in air; a different one for underwater.

Ocean Flight: presents many specializations, the pinnacle of which is probably found in the albatross. The wings feature a greatly increased number of primary feathers and greatly increased soaring lift, low drag from narrow wings and several other changes of interest in aerodynamic adaption, where horizons are limitless and wind almost perpetual.

Nesting: probably the scarcest resource for the ocean birds is safe land, on which to nest, which is at the same time close enough to rich food sources so that they can feed their young.

### Dr. Ian McTaggart-Cowan

Dr. Ian McTaggart-Cowan, Member of the Victoria Natural History Society, Chancellor of the University of Victoria, world renowned biologist and dedicated conservationist, was the guest speaker at the annual dinner meeting of the Victoria Natural History Society, May 13, 1980, in the Tundra Room of the University of Victoria. His topic was, "Birds and The Sea". Dr. McTaggart-Cowan created such enthusiasm for the subject, we asked him to write a special article for the Natural History Magazine.

Dr. Ian McTaggart-Cowan was raised in British Columbia and educated at U.B.C. and the University of California at Berkeley. He has established a national and international reputation as a researcher, advisor to business and government, and an active participant in wildlife conservation. Titles, honours and a lengthy publications list all testify to his lifelong dedication to learning and the natural world.

Dr. McTaggart-Cowan is Chairman of the Academic Council of British Columbia, and the Canadian Advisory Council on whales and whaling. He was recently named honorary president of the Federation of British Columbia Naturalists. The National Wildlife Federation of the United States named him International Conservationist of the year in 1978. Throughout his career, Dr. McTaggart-Cowan has displayed an ability to understand both sides of the development-conservation question. As he has pointed out in a previous interview, he believes resource development, including logging, is necessary -- not a necessary evil. But development must be balanced with conservation or, in his words: "wise use". We thank Dr. McTaggart-Cowan for his informative article, "Birds and the Ocean".

*Marjorie Ketcham, Editor  
Natural History Magazine.*

#### SPECIAL FIELD TRIP AND TOUR:

"Birds and Botany in the Okanagan", May 5 - 13, 1981. Expert guide in charge. If interested, phone Charlie Trotter (477-4365). Approximate cost \$380.00.

### THOSE PENGUINS!

*by Merle Harvey*

*If Jack had looked more closely  
at the tale of penguins four,  
He would have seen they went by air  
to Cape Town, nothing more.*

*In the "News from Johannesburg" there was  
no mention of Agoa Bay.  
After being cleaned of oil, they were  
put back into the sea.*

*They swam from Cape Town round the Horn  
Back to Port Elizabeth - then -  
news was sent from friends to me  
knowing my "Nature yen"!*

### CONSERVATION

The bird blind at Quick's Bottom was completed, largely due to the efforts of Doug Ross and the co-operation of the Saanich Municipality. The cost of the blind was \$490.00.

### CHRISTMAS BIRD COUNT

#### ATTENTION ALL!

The 1980 Victoria Christmas Bird Count will take place Saturday, December 20. Anyone interested in helping to do this should attend Birders Night, Tuesday, November 25 in the Provincial Museum Boardroom, or call Mike Shepard at 658-5850.

### ATTENTION NATURAL HISTORY MEMBERS

#### IN SIDNEY AREA

Anyone interested in a Wednesday or Thursday morning outing for birdwatching, such as the Tuesday Victoria Group with Davey Davidson, please call Mike Shepard at 658-5850.



THE PROVINCIAL CAPITAL GREENBELT  
AND CAPITAL CITY FOREST

British Columbia's provincial capital is endowed with a rich heritage of scenic landscapes. These as well as its urban amenities and the sea around us could contribute greatly to the social and economic well-being of the Capital Region. Unfortunately, historical circumstances have made most of the land unavailable to the public, even though, by present standards, we are well supplied with parkland, thanks to the efforts of citizens, planners and politicians. Most of the areas designated "Regional Greenbelt" in the Official Regional Plan can only be seen on a "Sunday drive" basis. Will such limited access be adequate in future if personal mobility by private automobile is less than at present? Access in the longer term should be assured by walking trails adjacent to private land in greenbelt status in addition to trails in dedicated parkland. Parkland close enough to regional population centres is unlikely to be adequate to meet 21st Century needs without expenditure of unrealistic sums of money for parkland acquisition.

City forests and greenbelts which are both extensive and close to where people live enhance the liveability of such cities as Oslo, Zurich, Hanover, Auckland, and Ottawa. A Provincial Capital Greenbelt of public and private land should be planned for the benefit of future generations of regional residents and visitors. A recent recreational study found that opportunities for outdoor recreation were highly rated by Victoria residents. Policy makers and planners were urged to extend their planning horizons, to plan today ... "for the next two or three decades and beyond". Planning and action should begin before it is too late.

There can be no completely objective number established for the ratio of parkland to population. Value judgements must be made. In the years to come, Victoria residents will become more dependent on nearby open space because it seems likely that the mass exodus up the Island Highway on weekends will become a thing of the past. The parkland designated in the Official Regional Plan, not yet in the public domain, should be acquired in accordance with a program as specified in the Plan. Other valuable areas should also be considered.

One of the most significant areas designated in the Regional Plan not yet available to the public is the Gowland Range. This magnificent high ground of spring flower-filled meadows, windswept Douglas fir trees, and orange-barked arbutus and manzanita, commands an unrivaled 360° view of the Malahat across Finlayson Arm, a sight of the Olympics and views across the Saanich Peninsula to Salt Spring Island. Currently undeveloped, it is nevertheless mostly within the 10 mile circle of downtown Victoria.

Should the Gowland Range become a park, the fragile areas of its hilltop meadows exemplifies one of the problems inherent in public parkland that becomes heavily used because of its proximity to a large population centre. Spring flowers will be trampled to death and delicate mosses stripped from the rocks. Protective measures should go beyond the capability of parks staff. The formation of a volunteer "Friends of the Park" could play a very important role in maintaining the beauty of the Gowland Range. Guided tours, information signs and people on hand to caution the public that might not realize that damage is being done by not staying on designated trails. Members of the Natural History Society might have a special interest in developing such a "Friends" program for parks having a special interest for them.

It seems inconceivable that publicly owned parkland alone will suffice our future needs for green open space when the population of the Capital Region has doubled or more and close-by open space will be at a premium because of transportation costs. We need to retain privately owned open space as attractive greenbelt. This could be facilitated by offering tax rebates to private land owners who keep the Region's heritage of attractive landscapes in a condition which benefits the public through its natural beauty. There could be arrangements analogous to the City of Victoria's Heritage Buildings. A graduated scale of rebates might be available. A certain percentage for keeping the land unspoiled, a higher percentage for making a trail available for public use. Although there is provincial legislation on the statute books which could do just that, it is not being used. Those who consider that outdoor recreation opportunities are important should ask the Provincial Government, the Regional Board and Municipal Councils to activate the necessary legislation and press forward with a program to incorporate private greenbelt land into an integrated Capital City Greenbelt.

The Greater Victoria Greenbelt Society is completing a report on a Regional Trail System for the Saanich Peninsula. A comprehensive Regional Trail System, with local feeder trails, is a fundamental part of establishing a Provincial Capital Greenbelt. Private land owners need not be inconvenienced by a trail running adjacent to their property. When administrative arrangements are completed, they could even be compensated for providing a public benefit. Regional trail right-of-ways can also be purchased through funds supplied under the Regional Parks Act, with the Province paying one third the cost.

A Provincial Capital Greenbelt, with a major forested area, a Capital City Forest between Prospect Lake and the Finlayson Arm, planned as a comprehensive and integrated system would be of great significance to all Greater Victoria residents interested in the liveability of the area. We can make it a reality by continuing technical and political effort.

The preceding article was written by R.G. McMinn, Chairman, Greater Victoria Greenbelt Society, 794 Claremont Avenue, Victoria, B.C., V8Y 1K1, leader of a Botany Field Trip.

### VICTORIA HERITAGE TREES

by Mr. & Mrs. Archibald Morrison

The Heritage Trees Field Trip #5 on Sunday, August 3rd was our first experience with this interest group of the Victoria Natural History Society. The enthusiasm and knowledge of the members were as boundless and as keen as that of the birders and the botanizers whose company we have enjoyed.

A tour guide for the trip and a list and description of the trees that we were to identify had been meticulously prepared by Virginia Bartkow. Mr. Warren, a retired superintendent of Victoria Parks Service, our most energetic guide, had cared for many of the special trees, some of them from their infancy!

Not only did these trees serve as examples of living history but also their locations recalled the history of citizens. One tree in particular recalled geological time. The Dawn Redwood (*Metasequoia*), in the gardens of Government House, presents a unique link with pre-historic time. Fossils of this tree were found in northern B.C., the only evidence of its existence in North America. In 1943, the tree was discovered flourishing in China. Seeds were obtained and the species is now available in commercial nurseries around the world.

A Lebanon Cedar and two gigantic *Sequoia*, on the grounds of the S.J. Willis School, are important for their survival; nature being ravaged in the name of progress. A third Giant *Sequoia* was cut down to accommodate the school fence.

These trees also reminded us that this was once Hangman's Hill and was the site of the old gaol and detention building until 1941.

How are trees designated for the Heritage list? Chiefly on the recommendation of citizens. Trees with known long history, unusual size for the species, for a group of trees survival, for face colouring, and rare or unusual species for this area are also criteria for heritage designation.

Dr. Smith of the Victoria Parks Board suggested that the Siloes Maples on either side of Burdett Avenue should be recognized as unique because of their grouping. There is a fantastic story about these Silver Maples, illustrating the co-operation between the Hallmark Society, with its enthusiasm for the preservation of heritage buildings

and the Heritage Trees group's equal enthusiasm to preserve trees. The heritage house at 913 Burdett was to be moved but, a Silver Maple blocked the way. The house was divided and its halves were moved around the tree and then rejoined.

On to Ross Bay Cemetery. This is a closed cemetery and burials are made only in plots belonging to families who have possessed them over many years. Old Victoria family names etched in the gravestones helped us to link today and yesterday in the life of the City.

Venerable trees, like the names of former citizens, are dotted around the Cemetery. Some of these trees had been planted by families, others had been planted by the cemetery service over the years, since this became the City's third location for burials, in the mid-1800's.

A hedge of cork-leaf elm trees was planted along Dallas Road in the years of Mr. Warren's service, to screen the cemetery from the sea. This species of elm was chosen for its property to withstand the salt spray that winter storms lash over Dallas Road. The cuttings from which these trees grew were taken from two large elm trees in the corner of the Cemetery that had been sprayed for several generations by high seas.

The novice could speculate on the credentials for membership in the Heritage Tree group. In the interests of exact identification of a "Pinus", one of the group climbed into the lofty old tree in search of a cone that would be a positive deciding factor.

As we approached the gardens of Government House along St. Charles Street, a row of poplar trees could be seen inside the garden wall. These are the *Populus tremuloides Vancouveriana*, native only to Vancouver Island and the West Coast.

Sentries at the gates of the gardens are two giant sequoias and an equal large tulip tree.

As at Ross Bay Cemetery, the list of trees in the gardens is too long to include in this report. For those who would like to read those lists, a copy of the Field Trip tour guide can be borrowed from one of us who enjoyed the trip.

As the tour was terminating a Cooper's Hawk, feeding her two young, high in a Garry Oak, took our attention from trees. We were reminded that our interest in heritage trees is shared, not only with the generations of those who planted and those who marvel, but also with the birds who inhabit them.

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Bill Barkley, Vice-President of the Victoria Natural History Society, was made a Director of the Canadian Nature Federation. Congratulations, Bill, our organization is proud of you!



A GATHERING OF BIRDS

by A. R. Davidson

One warm sunny day towards the end of August, we (Eleanore and myself) were walking down Haro Road to see what birds we could find. Now, Haro is only occasionally a road. It starts at Cedar Hill Cross Road opposite the tennis courts and continues north until it reaches the sea. Sometimes only a narrow path, every once in a while a black-topped road, but where we were walking an open space about 150 feet wide used by the Oak Bay Municipality for storing leaves for compost. There are heaps of leaves, mounds of earth and as weedy a stretch of ground as can be found anywhere - a bird sanctuary full of natural feed. On the east part of Haro is what we call the Glen, a rather steep-sided ravine, heavily wooded, with a small creek at the bottom. This glen continues to Cadboro Bay Road. On the west side is the Campus, also fairly heavily wooded, with many tall Balsam and Douglas firs.

To get back to where we started walking down Haro, we noticed one of the tall firs with mostly bare branches was festooned with birds, all cedar waxwings, and, as they always do, sitting bolt upright. We started to count them, got to over a hundred when, at some silent signal, they flew in a solid mass, a cloud of waxwings. Up they went, still compact, and flew over the trees out of our sight. We estimated over two hundred of them.

Still standing there we heard the clapping of band-tailed pigeons on the glen side of the road, and as they flew over the open space on to the University side, we counted them and found we had one hundred and fifty band-tails. There were still a few birds in the trees where the pigeons had come from and they resolved themselves into western tanagers, very excited and swooping all over the trees. Without moving from where we were, we found other birds; six evening grosbeaks, three warbling vireos, two black-capped warblers, a Swainson thrush, and, on top of a high fir, an olive-sided flycatcher. As we started to move on, Eleanore caught sight of birds in the low brush close by, and, so furtive are these birds it took considerable patience to finally identify them as two Lincoln sparrows, which are regular, if sparse migrants, but hard to find. That day there were twenty species of birds in that area, which included towhee, winter and Bewick wren, song sparrow, chickadee, ruby-crowned kinglet, a flicker, barn swallows, Stellar jay, purple and house finch and a few juncos.

ROSE-BREASTED GROSBEAK

by A.R. Davidson

A week or so ago, Mrs. Aldous, who lives on Tudor Avenue, at Ten Mile Point, reported that there had been two Rose-breasted Grosbeaks in their garden for three-quarters of an hour, which enabled her to make some good observations. So I phoned Rob McKenzie-Grieve and the next morning Margaret and he scouted her very extensive garden and the adjacent area, without any luck.

Some days later, Eleanore and I were walking down Haro Road and she spotted a grosbeak some distance away with a light breast. We tried to get closer to make a better observation but it flew away. So we don't know.

Mrs. Aldous is a good birder and I believe her report. She was with Mary Clark when the first Rose-breasted was found at Ten Mile Point on June 25, 1972. This bird had been reported to us by a friend living at Oyster River in January of the same year. We can only presume it was the same bird. It was seen by all the members of the Tuesday Group the next day.

When Mrs. Aldous was on the phone, she told me the story of the Pheasant and the Quail, both adult male birds and apparently the only ones in the vicinity. She started to feed the quail during the winter months and the pheasant would try to get some of the grain for itself but the quail would chase it away. This went on for a while and then they were seen sharing the food. Now they are always seen in company and quite apparently are very good friends.

Can any of our bird-watching readers duplicate this observation?

OUR WONDERFUL BEWICK WRENS

by A.R. Davidson

When we came to live on Brighton Avenue in July of 1965, we had around this pleasant cul-de-sac many birds: song sparrows, bushtits, towhees, house finches, western flycatchers and Bewick wrens, all nesting nearby, and in the winter golden-crowned sparrows and juncos. Most of these, with the exception of the wrens and the bushtits, are now rarely seen, as the many cats of all sizes, colours and origins have increased, and in addition we have raccoons, crows and an occasional mink.

The Bewick wrens, however, are still with us, defying the inferior cats and coons, and they have always nested in the locality.

This year they raised three broods, though the number of young is uncertain. On the third nesting, however, they elected to use the box under the bedroom window which I had put up many years ago.

They started work in this box the first of July, commencing feeding on the 12th and on the 25th the two young hopped out of the box, one immediately after the other and flew with confidence around the nearby bushes. No hesitation, no previous training, I could hardly believe it! Now they have all temporarily disappeared.

This is a very condensed account of many time-consuming observations, but we enjoyed watching the extremely busy life of the Wren.

### GARDENERS BEWARE!

*by Katherine Sherman*

After the bird outing to the Marshall-Stevenson Wildlife Centre at Qualicum Beach on August 24, I happened to be walking north a short way along the highway, when my eye caught sight of some foliage which seemed strangely familiar. Surely it was Goutweed, or Ground elder, a plant I hadn't seen for forty years, but well known to former residents of the British Isles as a pestilential weed, almost impossible to eradicate because of its numerous fine, branching rhizomes.

The following day I was visiting friends near Duncan, and there in one bed of their well-kept garden was a dense mass of this same Goutweed!

Back at home, I looked it up in my little English wildflower book. The scientific name is *Aegopodium podagraria*. It was not in any of my North American handbooks, including "Weeds of Canada" or "Flora of the Saanich Peninsula". I consulted Doris Page, a long-time member of our Society and a leading horticulturist in this area. She had not heard of Goutweed in the Victoria area, but knew the plant well in England and also a variegated variety grown out here as a ground cover. I phoned Dr. Ogilvie of the Provincial Museum Botany Section, who looked up records and reported back that their only record of Vancouver Island was from Courtenay, but that it had been reported in the Vancouver area, Chilliwack and the Okanagan.

Goutweed is a member of the Umbelliferae, and has a white flower somewhat resembling a wild carrot. The radical leaves vary a lot in both size and formation; the one I measured was 12" across and had a 17" stalk.

For the sake of local gardeners, we hope it will not spread further south. But if it does, all is not lost. According to an article in last June's issue of the "Scot Magazine", about Roger Bank's "Garden of Weeds", Goutweed can be made into a culinary delight! "Cook lightly with a handful of wild garlic leaves. Puree, stir in lemon juice and cream. Serve hot or cold." We are told it contains twice as much iron as spinach, and in mediaeval times was used as a cure for gout.

N.B. - Since writing the above, I have sampled pureed Goutweed, and can report that it is not unpleasant, with a mild hedgerow flavour. In fairness to Mr. Banks, I must try it again in the spring when the leaves should be less tough.

### AUDUBON - OCTOBER 1980 TO MARCH 1981

FRIDAY & SATURDAY NOVEMBER 7 & 8 8:00 P.M.	"Vanishing American Wildlife" by Burdett White.
FRIDAY & SATURDAY JANUARY 23 & 24 8:00 P.M.	"Song of the Northern Prairie" by Allen King.
FRIDAY & SATURDAY FEBRUARY 20 & 21 8:00 P.M.	"Adventures of a Wildlife Photographer" by Robert Davison.
FRIDAY & SATURDAY MARCH 27 & 28 8:00 P.M.	"Wilderness Trails" by Charles T. Hotchkiss.

*All are at Newcombe Auditorium, Provincial Museum; Carpark reached from Superior Street.*

SEASON TICKETS are available during September from:

- \* Gift Shop, Provincial Museum
- \* Borogrove Bookshop, 10 Centennial Square
- \* Dogwood Gift Shoppe, 2180 Oak Bay Avenue
- \* Bolen Books, Hillside Shopping Centre
- \* Woodward's Book Store, Mayfair Shopping Centre

Season Tickets: Adults - \$8.00  
Golden Age & Student - \$6.00

Single Adult Admission: \$2.00  
Golden Age & Student: \$1.50



For information, please call: 598-1623  
 Seats NOT HELD for Season Ticket Holders after 7:45 p.m.

Audubon Wildlife Films are presented by the Victoria Natural History Society and the B.C. Provincial Museum.

### MUSEUM WATCH

"Birds of Prey" - Second Floor - B.C. Provincial Museum, to January 4, 1981. A must to see.

"William Morris Carmichael, Silversmith" - now showing till January 3, 1981, Natural History Gallery. An exhibition of exquisite silverware manufactured in the shop of well-known silversmith, William M. Carmichael, in Victoria from 1929 to 1951.

### SPECIAL FILM ON GRIZZLY BEARS

On behalf of the Vancouver Island Marmot Preservation Committee, Andy Russell will give two film lectures, Audubon style, on his well known work with grizzly bears.

The dates for the two Victoria programs are Monday, November 3rd at 8:00 p.m. and Tuesday, November 4th at 2:00 p.m. Both programs will be held in the Newcombe Auditorium. All proceeds will go towards the work of the Vancouver Island Marmot Preservation Committee and their efforts to enhance this species.

Dr. McTaggart-Cowan will introduce Mr. Russell and the program. Tickets will go on sale at the Museum Gift Shop October 13th - Adults: \$3.00 and Children 17 and under: \$1.50.

This promises to be a very interesting and special evening for all Naturalists!

Mr. Russell lives just outside Waterton Lakes National Park near Pincher Creek, Alberta and is a well-known lecturer and photographer.



### CECIDIA

By Merle Harvey

On an outing to Esquimalt Lagoon on 16th September, my attention was drawn to some hairy galls on a rosebush. On looking these up, I found they were "mossy rose galls", which I don't remember having noticed before.

Galls, or cecidia, are swellings or excrescences of plant tissues caused by the action of parasites. They are caused by chemical action of secretions of infesting organisms, usually insect or fungi. There are many forms of cecidium, depending on the type of parasite.

The most striking galls are caused by insects that begin their invasion by laying eggs in the plant tissues. The gall wasps, cynipidae, include the greatest number of species of gall-forming insects. Several galls caused by cynipidae are important sources of tannic acid.

A few galls that may be noticed on our walks are the following:

**SPRUCEBUD APHID GALLS:** Look like small cones at the ends of branches. Aphids feed at the bases of growing needles. Bases swell eventually, coming together to form the cone-like structure.

**WILLOWS LEAF GALL:** consists of 30-60 leaves shortened and growing together. Larvae live at the bases of the rosettes.

**THIMBLEBERRY KNOT GALL:** Typically a distorted gall with chambers containing grubs of wasp-like insects. Downy woodpeckers and chickadees pick up the galls and feed on the grubs.

**PINE GALL:** A fungus-induced gall forming large spherical growth on branches. Squirrels often utilize this gall for food.

**GOLDENROD GALLS:** Spindle-shaped galls are induced by a moth - more spherical galls by a fly.

**POPLAR STEINGALL AND COCKSCOMB GALL:** both of these are aphid-induced galls. Poplar steingalls are formed on leaf petioles. The cockscomb gall is formed on the midrib or main vein of the leaf.

**ROSE GALL: (DEVIL'S PINCUSHION):** these are known as "pea" galls. They are often solitary but sometimes a dozen or so may be present on a leaf. Grubs of gall wasp feed on the lining of the gall.

**ROSE KING OR MOSSY ROSE GALL:** One of the most striking and beautiful galls. Female gall-wasps lay eggs in the unopened buds. The gall eventually grows into a many-chambered structure surrounded by a dense mass of branched, sticky filaments, giving the impression of a ball of moss.

## KANGAROO RAT

When I agreed to take a group of people from the Victoria Natural History Society on a tour of Malheur National Wildlife Refuge, I had no idea of what to expect from them. Now that summer is here, I can recall the two days in May spent with these folks as the highlight of my spring at Malheur Field Station. Never have I been with a more enthusiastic and genuinely interested group of people. This short article concerning some special adaptations of kangaroo rats is an outgrowth of one of our evening conversations.

**BIG FEET, BIG NOSE, BIG EARS:** Making life simple in the desert! Kangaroo rats, or more affectionately, "roo-rats", are members of the Heteromyidae family of rodents. This family also includes the pocket mice and kangaroo mice, and all members of the family have fur-lined cheek pouches for transporting food items and nesting materials.

Like other terrestrial vertebrates, roo-rats have a long list of adaptations which allow them to survive relatively easily in an otherwise hostile environment. Most of us are familiar with adaptations such as warm-bloodedness (now called endothermy), negative-pressure lungs (instead of breathing through gills or moist skin), and even hemoglobin (the red oxygen carrying pigment in blood cells) without which a person's heart and blood vessels alone would outweigh the person several times! In addition the roo-rat's big nose, big ears, and big feet are adaptations which have only recently been understood.

The kangaroo rat is aptly named. Its body conformation is strikingly similar to that of the Australian kangaroo; i.e. large hind feet, large hind legs, and long heavy tail. Strangely enough, the saltatorial, bipedal locomotion of kangaroos and roo-rats is the most energy efficient means of walking over ground. Thus, the big feet help the roo-rat to conserve energy. And, using its heavy tail for turning ballast, the roo-rat can demonstrate a series of rapid-fire leaps and turns which will leave even nimble predators awestruck!

The "big ears" of the roo-rat are really a little misleading. In actuality, the external ears of the roo-rat are not that large, but the tympanic bullae are very large. The tympanic bullae are the bony cases that enclose the sound transducing area of the inner ear; and in the roo-rat, these bony cases are larger than the brain case itself! By comparison, a human would have to tie a large coconut to each ear in order to achieve the same effective size. For the roo-rat, this bizarre feature has very practical consequences.

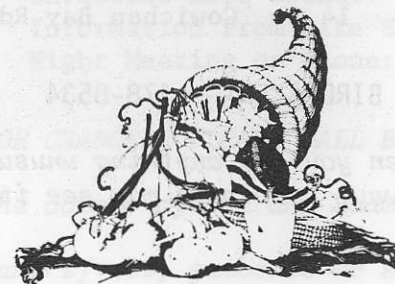
Although ears are rarely used to locate food items, they are frequently used to locate potential predators. The roo-rat has very sensitive hearing in the 1,000 cycles to 3,000 cycles per second frequency range. It is no coincidence that the two major predators of the roo-rat (rattlesnakes and owls) make faint sounds in this frequency range when attacking. Upon hearing the approaching predator, the roo-rat initiates a series of high leaps in the air, thus making itself a most difficult target indeed!

For desert dwelling plants and animals, the availability of water becomes all-important. The roo-rat is no exception. There is rarely any free water to drink, so the roo-rat must rely on the moisture found in the seeds that it eats and upon "metabolic water". Metabolic water is produced in animals when the ingested food is oxidized by the inhaled oxygen, producing both water (H<sub>2</sub>O) and carbon dioxide (CO<sub>2</sub>).

With such little water available to sustain life, the roo-rat conserves water in several ways: it does not perspire; its urine is approximately seven times as concentrated as human urine; its fecal pellets are very dry; it avoids high temperatures and low humidities by remaining in its relatively cool and humid burrow during the day and foraging only at night; and lastly, the roo-rat uses a temporal counter-current respiratory moisture conservation mechanism. Which is another way of saying the roo-rat has a big nose!

As the roo-rat inhales air through its long, narrow nasal passages, moisture evaporates from the walls of the passages into the air, and the walls become quite cool. While the air is in the lungs, it becomes one-hundred percent saturated, and it is warmed to body temperature. Then, when the warm, moist air is exhaled through the now cooled nasal passages, the exhaled moisture condenses on the cool nasal membranes and is prevented from escaping to the outside air! Thus, even the nose of the kangaroo rat is modified to conserve moisture.

Perhaps the moral here is that things are not always as they seem, and for some creatures having a big nose, big feet, and big ears is highly advantageous!





BIRD OBSERVATIONSAUGUST

<u>No.</u>	<u>Species</u>	<u>Date</u>	<u>Area</u>	<u>Observer</u>
1	Eastern Kingbird	9	4073 Grange Rd.	Harold Hosford
1	Red Crossbill	11	Cadboro Bay	L.G. Roberts
6	Purple Martins	17	4373 Prospect Lk. Rd.	Giff Calvert
1	Nashville Warbler	17	Robertson St.	R. Satterfield
1	Am. Golden Plover	17	Victoria Golf Course	R. Satterfield
5	Northern Phalaropes	23	Clover Point	R. Satterfield
1	Smith's Longspur	26	McMillan Rd., Sooke	R. & V. Rogers
1	Long-tailed Jaeger	31	Mary Tod Island	Keith Taylor & Bob Hay

SEPTEMBER

3	Sooty Shearwaters	6	Trial Islands	M.G. Shepard
1	Lapland Longspur	7	Victoria Golf Course	J.B. Tatum
1	Marbled Godwit	8	Cadboro Bay	D. & K. Suttill
1	Skua	8	Parker Bay	B. Holt
1	Red Knot	13	Clover Point	B. Savale
1	Hammond's Flycatcher	20	Metchosin Lagoon	M.G. Shepard
16	Sandhill Cranes	20	Metchosin Lagoon	R. Mackenzie-Grieve
2	Upland Sandpipers	14	Cowichan Bay Rd.	B. & W. Meteer

BIRD ALERT - 478-8534

*It would be helpful if, when you see anything unusual or of interest, you phone 478-9715 right away, so others may see it, too. This is what the "Alert" is for.*

PROGRAM - NOVEMBER/DECEMBER

SAT. NOV. 1	Insects and Amphibians. Leader: Bob Cannings and Alton Harestad. Meet Mayfair Lanes 9:00 a.m.
SAT. NOV. 8	Mushroom Foray. Leader: Al Funk. Meet Mayfair Lanes 9:00 a.m.
TUES. NOV. 11	General Meeting: Newcombe Auditorium, Provincial Museum at 8:00 p.m. Speaker: Dr. C.G. Hampson. Topic: The High Arctic.
SAT. NOV. 15	Birders Trip: Sooke. Leader to be announced. Meet Mayfair Lanes 9:00 a.m. or Whiffen Spit, 9:45 a.m.
TUES. NOV. 18	Microscopic Aquatic Zoology with Alex Peden. Classroom at the Provincial Museum at 8:00 p.m.
SAT. NOV. 22	Observation of Rutting Behaviour. Leader: Alton Harestad. Meet at Fort Rodd Hill parking lot at 3:30 p.m. Bring bag supper.
TUES. NOV. 25	Birders Night: 7:30 p.m. Boardroom, Provincial Museum with Mike Shepard. Bring a few slides. Topics for discussion include bird identification tips, field trips and The Christmas Count.
TUES. DEC. 9	General Meeting: Newcombe Auditorium, Provincial Museum at 8:00 p.m. Speakers: Len and Norma Chatwin. Topic: Nature - from Sea Level to Alpine Regions - Canada and Nepal
SAT. & SUN. DEC. 13 & 14	Birders Precount Scouting Weekend.
SAT. DEC. 20	Christmas Bird Count. Information from Mike Shepard at Nov. Birders Night Meeting or phone: 658-5850.

FOR MORE INFORMATION OR CHANGES, PLEASE CALL BIRD ALERT - 478-8534.

Mayfair Lanes is at the corner of Oak and Roderick, by Bowling Alley.

Always take a lunch; and if wet, gumboots or strong shoes.

JUNIORS PROGRAMFOR NOVEMBER/DECEMBER

- NOV. 8 Goldstream: 9:30 - 12:30. Salmon spawning.  
Campfire. Leader: Gail Mitchell. Bring  
lunch. Meet Mayfair Lanes at 9:30 a.m.
- NOV. 22 Visit the Weather Ship, 10:00 a.m. to 12:00  
Noon. Aboard the "Vancouver".  
Meet Mayfair Lanes at 9:30 a.m.
- DEC. 13 Provincial Museum, 10:00 a.m. to 12:00 Noon.  
"Christmas for the Birds". Making feeders.  
Leader: Maureen Gee.  
Meet at the Museum entrance at 10:00 a.m.

PARENTS:

Parents have now accepted the responsibility for getting their children to and from the site of each program. If, however, your child does not have a ride, please phone Margaret Wainwright at 592-1310 before the Saturday.

Parents who are driving may meet at Mayfair Lanes or go straight to the location of the day's outing.

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