

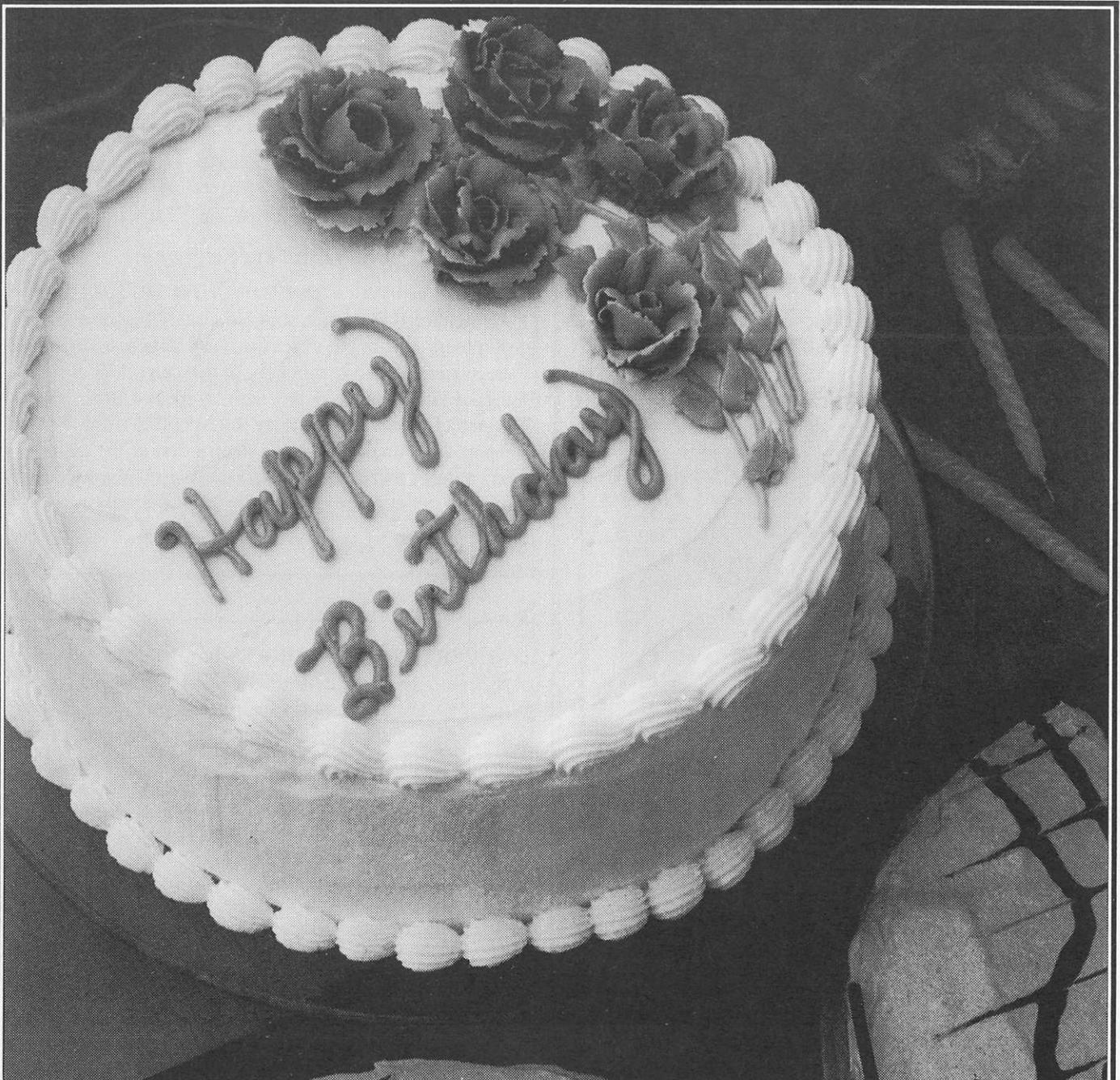


The Victoria NATURALIST

SEPTEMBER
OCTOBER
1988

VOL. 45.2

VICTORIA NATURAL HISTORY SOCIETY



HAPPY 100th BIRTHDAY, DAVEY!

OCTOBER 17, 1988



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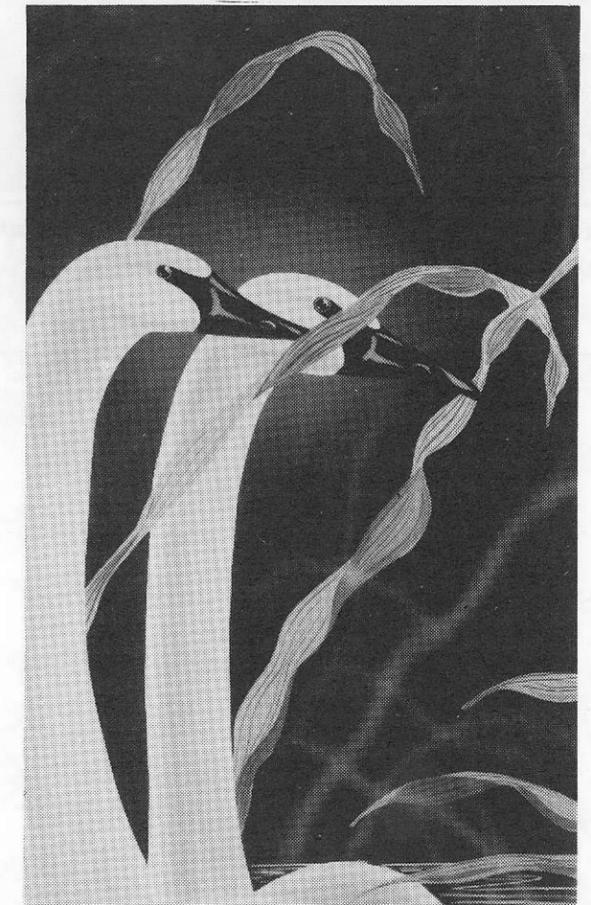
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Cover Photo

Albert R. Davidson (Davey) will celebrate his 100th birthday on October 17. A VNHS member since 1948, he is one of six honorary life members of the society. During the fifties and the early sixties he served as editor of *The Naturalist*, very often doing everything from putting the publication together to even delivering it to members. As well, he helped start the Tuesday Group back in 1953, and led that group for many years. Davey has contributed much to our society in so many ways and still regularly contributes to the magazine.

From all of us, HAPPY BIRTHDAY!

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New Ltd. Edition Serigraph entitled "Keepers of the Lake"
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Bertha McHaffie-Gow

Davey (right) receiving gifts on his 93rd birthday from another honorary life member, A. Douglas Turnbull*.

* Mr. Turnbull and his wife Elsie will celebrate their 60th wedding anniversary on September 17th. CONGRATULATIONS!

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The University of Victoria

By A.R. Davidson

As this year marks the 25th anniversary of the University of Victoria, a brief history of the property might have some interest.

The Finnertys purchased the land in 1871, about 330 acres of solid forest, and it was Michael Finnerty who cleared and farmed the land for the next 40 years, retiring in 1911 at the age of 82.

The history of the farm from then on is rather obscure, but it was more or less intact in 1940 when the Department of Defense took it over as a site for an officer's training camp. When the war was over the camp was turned over to the Department of Veterans' Affairs, and the fifty empty huts were used as accommodation for the returned soldiers' families. The National Defense owned the property until 1959 when it was acquired by Victoria College, succeeded in 1963 by the Victoria University, the campus containing 380 acres, bounded by Cedar Hill Cross Road, Gordon Head Road, Sinclair Road and Haro.

The large field on Cedar Hill Cross Road opposite the Oak Bay Recreation Centre is also part of the University property, including the wooded ravine which lies between the field and Haro Road. This field was at one time the site of CJVI Radio Station's two towers, which were the favourite perching places for the Western Bluebirds on their annual southern migration.

This farm had one unique feature in that it was the only place in America where skylarks could be found. It was in the fall of 1903 that 100 pairs were liberated by the Natural History Society of British Columbia. Maybe they weren't doing very well, as the Society imported 49 more in 1913. And on Finnerty's fields, where we assume they were liberated, they stayed until 3 or 4 years ago when new buildings and increasing human activities caused them to leave their old grounds and seek more open spaces.

The natural forest still covers about half the grounds, and well-maintained jogging paths have been created through all the wooded areas, making it an ideal place for birders and botanists. A list of birds seen there would be a long one, but it has had four species of owls, and a pair of eagles have nested there for some years.

We are very grateful for the open spaces and the natural forest around the University, which could have been filled with high-rises.

Some of the details regarding the early years were taken from Ursula Jupp's book titled *From Cordwood to Campus*, a history of Gordon Head from 1862 to 1959 and a book well worth reading.

The Adventure of an Owl

By A.R. Davidson

For many years one of our Tuesday Group used to come from Saseenos to join her friends. Her name is Mrs. Maria Van Maurik. Last week Maria sent me a newspaper cutting from the Netherlands about an owl. Thankfully she included a translation.

It appeared that a Boreal Owl had landed on a Polish freighter while somewhere in the waters of northern Canada. The Captain kept it in his cabin and after landing in Rotterdam he contacted a bird-rescue group there who took care of it. The owl arrived in poor condition, proper feed not being available. The bird-rescue centre kept it about a year and then contacted Mr. Kees Vos, a pilot for the Dutch airline KLM, and Mr. Vos took the owl with him and put it in the cockpit of the "Donau", a Boeing 747, where he could keep an eye on it while he flew back to Toronto. There the owl was picked up by the Owl Rehabilitation Centre, from where it will go to northern Ontario — or "Vineland", as Maria puts it.

According to the American Ornithologists' Union Check List, there are three Boreal Owls, one being circumpolar, another, the Canadian one breeding in Alaska, Yukon and the Northwest Territories, and a third one with a habitat of eastern Siberia.

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Parks and Conservation Report

By Reuben Ware, Chairman, Parks and Conservation Committee

Before I make my urgent plea for volunteers to work on the Parks and Conservation Committee, I want to present a brief status report on the local environment. The situation is not hopeful, as you are rapidly losing your natural areas.

Development of the Saanich peninsula continues at a breakneck pace. One glance at a typical Saanich Council meeting agenda indicates the rapid loss of natural areas to development. For example, Rithet's Bog is increasingly hemmed in and the southern part of the Rithet estate is under the bulldozer. Martindale Flats is up for sale. There are plans to expand radio transmission facilities on top of Mt. Douglas, which will include commercial users in a park. And so it goes.

Waterfront pollution is continuing, though in this area, at least, local authorities are moving to resolve long-standing sewerage problems. The general state of Esquimalt Lagoon continues to deteriorate. It is a prime regional stop-over for migrant birds, yet it is not adequately protected by the Canadian Wildlife Service.

Yes, the situation is bleak, but it is also full of change. The Capital Regional District has an Official Regional Parks System Plan. A process is now underway to develop a specific master plan for each park. Island View Beach Park is the first park to be considered, and we are concerned that the plan will not adequately protect fragile beach and dune areas from damage by riding horses.

We need to have input into this park's planning process - and at the start, not just at the end when it is too late to influence events. To preserve our local environment, to have an impact on the process of regional development, to influence decisions about our parks, we must act together as a society. The vehicle for our common action is the Parks and Conservations Committee.

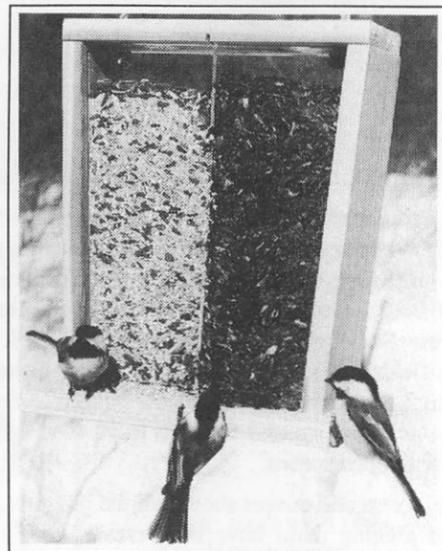
If you are interested and want to help, come to the next meeting on Wednesday, September 14, at 7:00 p.m., at my house, 134 Howe Street, Victoria. We need workers, watchdogs and advocates. For more information, call Reuben Ware at 385-2803.

Saltwater Aquarium Unveiled at Witty's

During the summer the Capital Regional District Parks Department unveiled a new saltwater aquarium at the Witty's Lagoon Nature House in Metchosin. The 140-gallon aquarium, specially designed for CRD Parks by Westwind SeaLab Supplies of Victoria, provides an opportunity for visitors to get a close-up view of dozens of saltwater creatures not easily seen by most.

The purchase of the aquarium was made possible through the generous donations of many individuals and groups, including the Victoria Natural History Society.

Now the world of Feather Duster Worms, Decorator Crabs, Hairy Sea Squirts and Pacific Pink Scallops is at your doorstep. Drop in for a visit to the Witty's Lagoon Regional Park Nature House off Metchosin Road. Nature House hours are 10:00 a.m. to 4:00 p.m., Wednesday to Sunday until September 5 and noon to 4:00 p.m., Saturdays and Sundays from September 10. There is no admission charge, and facilities are wheelchair accessible.



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Bird-Finding on Vancouver Island

Part 2. A Trip to Cowichan Bay

By K. Taylor

This entire trip lies within the boundaries of the southeast coastal lowlands, or to be more precise, on Southern Vancouver Island, the southeast coastal lowlands north to Nanaimo. The status of species here is generally "homogenous" except for those species that have precise habitat preference and a few specialties. Therefore only those species and uncommon or localized species will merit mention.

The Cowichan Estuary is more deciduous than the Saanich Peninsula, and Red-eyed Vireos are more common and widespread in the cottonwoods along the numerous waterways and Black-headed Grosbeaks more widespread in the numerous damp willow scrub thickets. Black-throated Grey Warblers are also more numerous in the available second-growth deciduous areas. More wet areas are found here, which support more nesting for dabbling ducks, mergansers, Common Snipe (Somonos-Quamichan Lakes) and other marsh species.

The specialties we will be searching for on this trip are: (A) American Dipper, Goldstream Provincial Park; (B) Hammond's Flycatcher, Spectacle Lake Park; (C) Vesper Sparrow, Cobble Meadows; (D) Green-backed Heron, Black Swift, Ring-billed Gull and Purple Martin, Cowichan Bay; (E) Western Bluebirds, Mt. Zuhalem; (F) Wood Ducks, Duncan Sewage Lagoons.

We start our trip at Highway 1 (Douglas St.) at the Town and Country Shopping Plaza and drive west toward Duncan. After driving 15.8 km you will have reached Goldstream Provincial Park; turn right and park. Here in this very narrow valley the rainfall is not heavy but rainforest conditions exist because it is so sheltered from the sun and wind that water evaporates slowly and as a result there are big trees, mossy boughs and dense undergrowth like that of a true rainforest. Along Goldstream River, which runs through the park alongside the highway, in and around the small rapids the Dipper will be found all year. In summer check under the bridges, as the Dipper frequently nests under them. Resident Varied Thrush and Hairy Woodpeckers (both uncommon) may be found along the many trails. During the salmon spawning in late fall many species of gull come to feed, among them the rare Glaucous. Barrow's Goldeneye frequent the river mouth in winter.

Return to the highway and turn right along the Malahat Drive. The view of the Saanich Peninsula and the Gulf Islands from an elevation of 1,000 feet is breathtaking.

At the summit of the Malahat turn left onto Whittaker Road to Spectacle Lake Park, 10.6 km from Goldstream Park.

Just after leaving the highway there is a stand of second-growth conifer forest where Hammond's Flycatchers are common from late April to September. After singing stops in July, they are more difficult to find. The song consists of three parts, all "burry". This species is found in scattered small numbers on the Saanich Peninsula but is found more readily here and northward on the east coast.

Continue driving along the road to the powerline clearing. Steller's Jays are to be found here in summer (uncommon resident) after they have left their wintering grounds at lower elevations on the Saanich Peninsula. The very rare Mountain Quail was last confirmed in this area (August 1986), so be alert to any Quail observed.

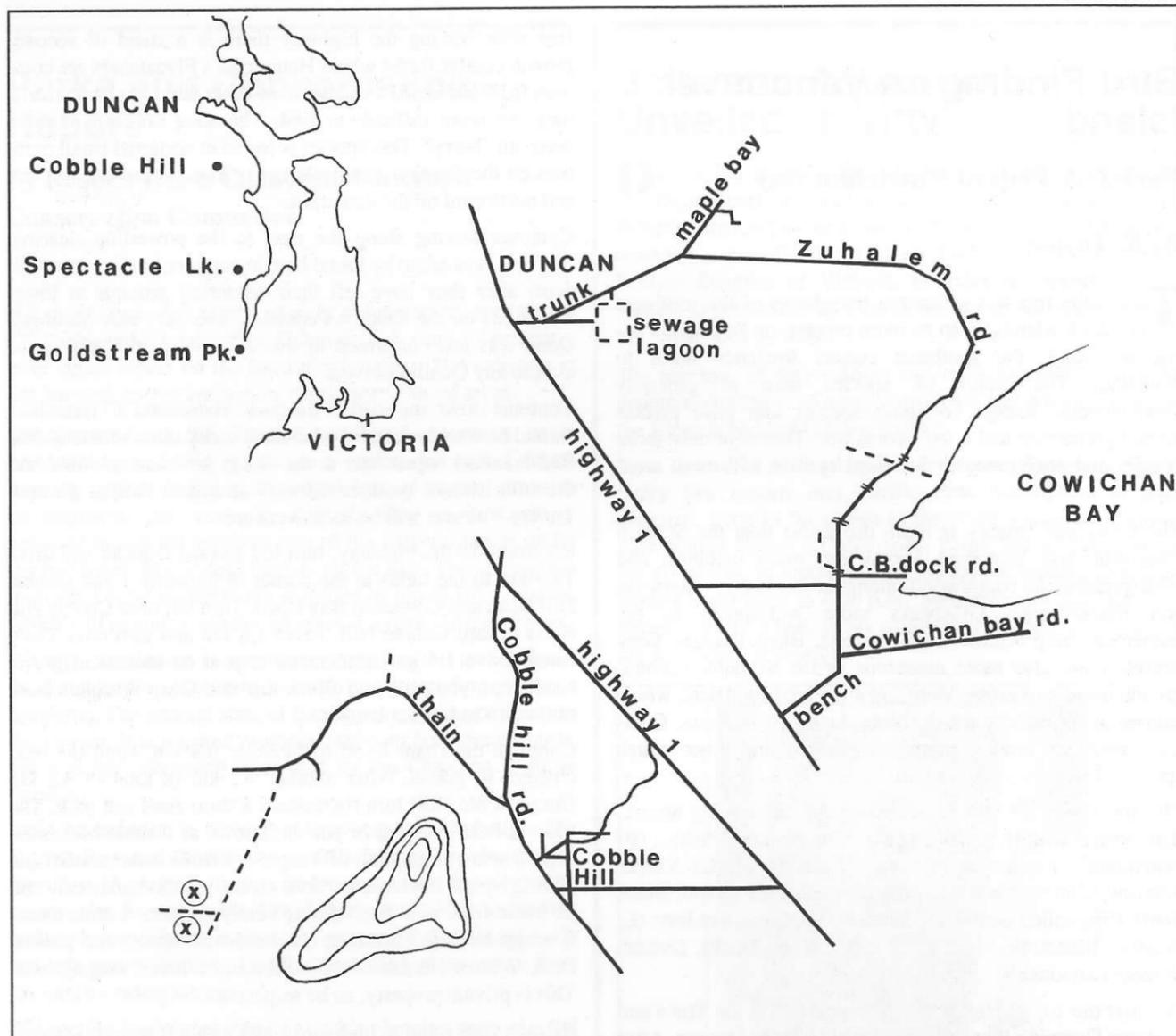
Continue down the road to the park. Hammond's Flycatchers should be found around the lake and lucky observers may find Red-breasted Sapsuckers in the alders (resident). A hike into the hills should produce Blue Grouse and Ruffed Grouse. Turkey Vultures will be seen overhead.

Returning to the highway, turn left toward Duncan and drive 19.3 km to the lights at the corner of highway 1 and Cobble Hill Road and Cowichan Bay Road. Turn left onto Cobble Hill Road toward Cobble Hill. Drive 1.8 km and turn onto Thain Road; drive 1.4 km further and stop at an unmarked gravel road. Here you will find Black-throated Gray Warblers from mid-April to late September.

Continue on Thain Road for another 0.9 km. Here the road changes to gravel. After another 1.2 km (a total of 3.8 km from Cobble Hill) turn right down a short road and park. The plowed fields in front of you are known as Cobble Meadows. Here a small population of Vesper Sparrows have nested, and although numbers have declined recently, individuals may still be found from mid-April through early August. A male usually sings from the brush to the northwest across the plowed field. Willow Flycatchers should also be heard singing here. This is private property, so be respectful!

Retrace your route to highway 1 and turn left toward Duncan. Drive 5.2 km from the corner of highway 1 and Cobble Hill Road and turn right onto Bench Road (at the Shell Station). Drive 0.8 km to Cowichan Bay Road, turn left onto Cowichan Bay Road and continue for an additional 0.9 km. You will have reached the Cowichan Bay Dock Road, also known as the CNR Dock Road (large sign). Turn right, looking carefully at the edges of the waterways for Green-backed Herons (uncommon, mid-April to August) hidden in the brushy margins.

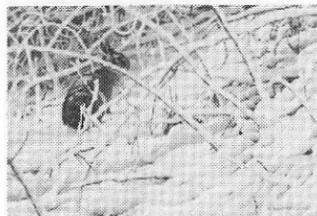
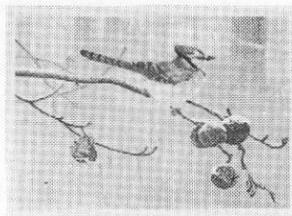
After driving 0.7 km you will see a wet field on the right. This area has produced many rarities including Great and Snowy Egrets and Ruff. Many species of shorebirds are well represented here, including both species of Dowitcher, Lesser Golden-Plover (uncommon fall) and Semipalmated Sandpipers, which are found among the many Western and Least Sandpipers. Wilson's Phalarope (fairly rare) has nested here. Occasionally Blue-winged and Cinnamon Teal, Northern Shoveler, American Wigeon and Northern Pintail have remained in summer to nest.



Christmas Cards

To order your Christmas cards through the Society, call Lyndis Davis at 477-9952 or talk to her at a meeting or on birders night (she's the tall lady with the knitting and the British accent who's always flogging books, decals and other stuff for the society. Support her; she keeps us solvent!).

Last year Christmas card response was gratifying. The cards are of high quality, and sales through the society help earn us a little extra money.



The brushy margins along the road are good for finding various sparrows, warblers and Rufous Hummingbirds. This is a good area for finding vagrants such as kingbirds and Yellow-headed Blackbirds. Watch for Black Swifts high overhead in early June.

Continue to drive or walk for another 0.6 km. On the left on Cowichan Bay are many feral Mute Swans (resident) and Ring-billed Gulls from late June to early November with a few into December. This is the best area for seeing Ring-bills on eastern Vancouver Island (up to 60 daily); they are uncommon elsewhere on the east coast. Look for the Purple Martin nest boxes on the pilings on the right (south) side of the road. The pilings are out on the mud flats or in the bay at high tide. This is the most convenient and reliable spot on southern Vancouver Island to see Purple Martins (mid-April to late August). The nest boxes on the left are full of Tree Swallows. An Osprey nest will be seen atop a man-made structure on the left (north) at the edge of the lumber yard. Check for numerous waterfowl in winter on the bay, including Barrow's Goldeneye amongst the logs. An occasional Caspian Tern may be seen in summer (May to July) flying over the bay.

Retrace your route to the CNR Dock Road sign and park your car. Walk over the bridge to the right and walk along the gravel dike road immediately on the left. Red-eyed Vireos will be found in the cottonwoods. An occasional Black-headed Grosbeak may be in the area. Green-backed Herons have been seen along the creek partially concealed by brush where the dike road turns sharply to the right and swings around close to the main river. Walk back to your car.

The Cowichan Bay Road has now changed name to Zuhalem Road. Turn right off the CNR Dock Road onto Zuhalem Road, stop at 0.5 km at the second bridge to check for Green-backed Herons, and continue on another 0.9 km to the fourth bridge. A walk on the dike road to the left will produce Red-eyed Vireos and Black-headed Grosbeaks and another chance for Green-backed Herons. Cattle Egret have been recorded once in the farm on the right (October to December).

Continue along Zuhalem Road to the junction of Trunk Road and Zuhalem Road and turn right toward Maple Bay. Drive for 2.9 km, then turn onto Kingsview Road (at the properties). Continue for 0.8 km, then turn right onto Belcarra Road for another 0.8 km and then left onto Chippawa for 0.3 km and park at the end of Chippawa. Here is an ecological reserve, Mt. Zuhalem, where nesting boxes have been placed for Western Bluebirds. Walk the many trails in the more open areas to find them. Occasionally Townsend's Solitaires are found in April migration. This is an interesting area to visit, the view magnificent.

Retrace your route to Zuhalem Road and Trunk Road, turning right on Trunk Road toward Duncan. After driving a short distance you will cross over a small bridge. Turn left on the dirt road. This is the entrance to the Duncan Sewage Lagoons. Check the creek here for Green-backed Herons. Willow Flycatcher and Black-headed Grosbeaks will be heard in the willows here. As parking may be a problem, you may want to drive to the far side. Continue driving on Trunk Road, turn left

at Marchmount Road to its end and park. To reach the sewage lagoons from downtown Duncan turn right at the lights at Trunk Road and drive straight onto Marchmount to its end (1 km). There are "postings", but birders are tolerated. The esthetics are not pleasant but the ponds are good for ducks, especially Wood Ducks (common summer, scarce late winter). Tufted Ducks have been recorded in April in the last two years among the hundreds of Lesser Scaup. Various Gulls are recorded in season. Bonaparte's Gulls (July to November) commonly perch on the power lines, and the fairly rare Franklin's Gull is annual here (September to October). Up to eight were seen here in 1987. They have been seen into December some years. In early June keep a watchful eye overhead for Black Swifts. Red-eyed Vireos are found in the cottonwoods along the river. For those looking for Wood Ducks unsuccessfully in winter check along the river or drive back to Duncan, turn left at the lights and drive to Boys Road (0.8 km). Just over the steel bridge you will see a Chinese restaurant. Behind the restaurant there are ponds that Wood Ducks frequent in winter.

Our last stop will be Somonos Flats. At the light on highway 1 at Trunk Road (downtown Duncan) turn right toward Nanaimo. Drive 2.8 km to the Somonos Nature Centre, park and walk to the bird tower (blind). This is possibly the best area to pick up Black Swift. Look far overhead against the clouds for migrants in early June, when hundreds may be seen. At other times through the summer this species is erratic with storm fronts on southern Vancouver Island. Migrants are seen in September but are not as prevalent here as in spring migration. This species migrates onto Vancouver Island north of the Saanich Peninsula; only small numbers are recorded there in spring. Sora Rails and Common Snipe will be heard in the wet grass around the tower in summer. Black-crowned Night Heron and American Bittern have been recorded here. Blue-winged Teal frequently nest in the area. Marsh Wrens are residents. In winter check here and the flooded areas nearby for Trumpeter Swans and many other species of waterfowl. Shorebirding is only fair here.

I hope you have enjoyed or will enjoy birding this area as much as I.

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Looking for the Wild Weekend

By Barbara Begg

An interesting two-day trip was enjoyed by several Society members who went in search of a wild weekend - Wild Turkeys, that is.

San Juan Island, besides having a very scenic and diversified habitat, is a great place to spend a few days discovering and studying nature's bounties.

Our trip took place in mid-July, and although it was a little late for spring flowers, there was an interesting variety of flora nevertheless. California Poppies, Common Mullein, Pearly Everlasting, Ocean Spray, Hardhack, Hedge Nettle, Hairy Cat's Ears and many other summer-blooming species were in abundance (no matter that many are considered invasive weeds; we had left our gardens and lawns far behind).

On the ferry trip over, two Harbour Porpoises were briefly sighted. The next day, from Lime Kiln Park, we were treated to a lengthy display by four Dall's Porpoises feeding and frolicking just off shore, most of their fieldmarks clearly visible. This park, on the west side of San Juan Island overlooking Haro Strait, is touted as a good place to see Orca and Minke Whales. We struck out on whales on this trip, but counted ourselves very fortunate to have witnessed the Dall's Porpoises. Other mammals seen were Black-tailed Deer, sometimes with spotted fawns, everywhere on the island, and Harbour Seals on rocky islets off Cattle Point in the south. European Rabbits, we were told, are making a comeback after a sharp decline in the 1970s. Although we saw none, there were many large rabbit warrens in the grassy fields at American Camp.

Of course, the excuse for the trip was birding, which we didn't neglect. Our "trip list" was about 65 bird species, which could have been considerably increased but for the fact that our main goals, which we achieved, were seeing Wild Turkeys and Eurasian Skylarks. We found two gobblers of the western race near English Camp on the north end of the island and two singing Skylarks at American Camp in the south. Alongside the roads there are numerous small ponds which are quite productive for birds and worth stopping at for a look and a listen. Throughout the island in suitable habitat were House Wrens, Brown Creepers, American Goldfinch (the state bird), White-crowned Sparrows, Red Crossbills and Pine Siskins. Olive-sided Flycatchers seemed unconcerned about elevation, as we heard several near sea level.

Neither the Wild Turkey nor the Skylark are native to the Pacific Northwest. The Wild Turkeys were introduced in that region by man, and the Skylarks undoubtedly flew over from the Saanich Peninsula's imported flocks.

During the summer months, campsites and other accommodations are at a premium on San Juan Island, so reservations are advisable, as are early arrivals for ferry sailings. Traffic law

enforcement is carried out with diligence, so take care. Bicycling? Forget it! It makes one exhausted just watching the numerous cyclists struggling up the ubiquitous hills. An 80-page newspaper-style brochure called "Springtide" is available free at Tanners Bookstore in Sidney or on the ferry, which is very helpful in advance trip planning. Ferry costs are high for a car, but made bearable with a car full of good friends to share the expenses.

Swan Lake Nature House Progress Report

By Terry Morrison

In the last issue of *The Naturalist*, I reported on the opening of the new Nature House facility at Swan Lake, which at that time was set for August 28. As with many best-laid plans, that date has changed. The opening ceremony is now firmly scheduled for Saturday, September 17, and Sunday, September 18, to allow more time for the production and installation of the displays.

The ceremony begins at 2:00 p.m. on Saturday with a ribbon-cutting ceremony, to be followed by Open House from 2:30 to 5:00. Refreshments, entertainment and programs will all be a part of the festivities. On Sunday the Open House continues from 12:00 noon to 5:00 p.m.

Due to limited space at the Nature Sanctuary parking lot, we are suggesting that visitors drive to the Saanich Municipal Hall parking lot and walk around the trail to the Nature House (just under one kilometer) on either of those two days.

If anyone is interested in helping out as a volunteer on either day, to serve refreshments, direct traffic, etc., please contact Anne Howie at the Nature Sanctuary office (479-0211).

Hope to see you there for the opening weekend.

Distinguished Service Award

A new award, the Distinguished Service Award, has been established by the Board of the Society. This award, a prestigious honour, is granted to a member who has contributed in some outstanding way to the aims and objectives of the Society. The award will be made at the annual dinner or the annual meeting. All members of the Society are eligible to nominate any other member who in their opinion merits this honour.

Nominations should be forwarded to the Awards Committee chairperson by December 15. They should be in writing and signed by at least three nominators. Winners will be chosen by the Board based on recommendations by this committee. Nomination forms may be obtained from the Secretary.

16,000 Art Lovers

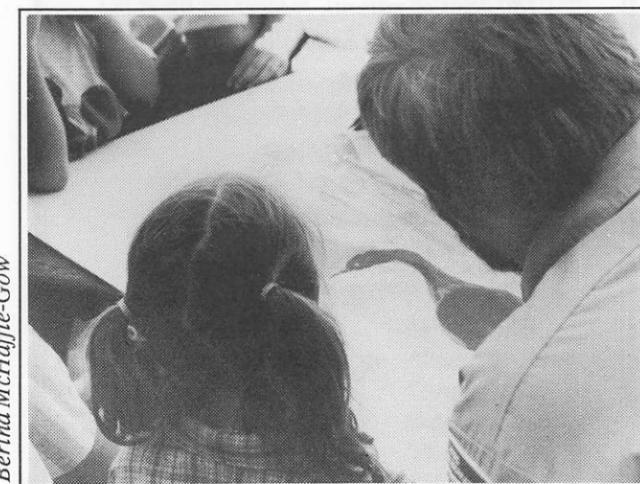
By David F. Fraser

Society members staffed the art works that were on display for the two-week period. The Visitor Centre had record attendance, with 16,084 people coming through the doors to see the display. Thanks go to all the volunteers who made the show a success.

Leah and Ken Ramsay did a great job of hanging the show, working with the setting in the Nature House into the wee hours before opening day. Anne Adamson and her swat team of telephoners did a marvellous job of the huge task of coordinating the volunteers needed, the Tuesday birding group providing the core. People really pitched in and helped at every opportunity - like Connie Hawley and Sue Cummings who came down on the Friday afternoon to do some birding at Goldstream Park and ended up spending the whole evening serving wine and cheese at the opening night. Giff Calvert led a team on into the night when the security firm hired to do the night shift failed to show up; is it true, Giff, that you told visitors to the show that you were 94 years old? It was encouraging to see so many new members involved - hope to see you again at meetings, on trips and at the February banquet!

At press time we are still adding up the money that was donated to the scholarship fund through the raffle and donation box, but we are anticipating a profit of something over \$2,000 generated by the show. This should give our scholarship fund a base for more growth. Many thanks to Mark Hobson, the artist who donated the two prints that were raffled off, and to Anne Laws, who framed them for the society at cost.

Without a doubt this show was the highest-profile event the Society has been involved with for a long time, and I would like to thank the membership for all their efforts. I would also like to publicly thank the staff at Goldstream Provincial Park for their efforts and energy in putting the show together.



Bertha McHaffie-Gow
Dave Fraser demonstrates watercolour technique to an interested onlooker during the Nature Art Exhibit.

Ichthyological Notes

By Graham E. Gillespie

Flying Fish

This essay is a defense of the proposition that fish learned to fly before birds. The defense will take three parts: the dating of the first reptilian ancestors of the bird presumed to have the power of flight compared to the dating of the first ancestors of certain modern fishes; a discussion of hydrodynamics in relation to the generation of lift by the fins of modern sharks; and a discussion of the hydrodynamics of the wings of penguins, a flightless bird which swims by "flying" through the denser medium of water.

The first recognizable ancestor of the bird (i.e. the first feathered and winged animal which could reasonably be called a bird) was the crow-sized *Archaeopteryx*, dated to the Jurassic period, some one hundred and forty million years ago. Although no one will ever know whether *Archaeopteryx* really flew under its own power or was just a glider (some researchers feel that it lacked the necessary musculature to actually fly), this can be considered an estimate of the age of the oldest bird. The most rudimentary shark may be said to be *Cladoseleache*, a form dated to the Devonian period, roughly three hundred and fifty million years ago. *Cladoseleache* was a free-swimming form, and had a body morphology similar to that of modern sharks. Thus do I propose the first point in defense of my thesis: ancestral sharks were first on the scene, predating primordial birds by approximately two hundred million years and the first man-made aircraft by three hundred and fifty million years.

In defense of the idea that sharks do actually fly through water, one must first understand that most of these animals are denser than the surrounding water, and must constantly exert energy to maintain their position in the water column. The most effective means of maintaining position in this case is to use the shape of the body to generate lift from the water which is moving past the animal as it swims. Modern sharks use their pectoral fins as the primary lift-generating surfaces.

To do this, the shark's fins exploit the same principles of physics which allow the wings of a bird (and the wings of man-made aircraft) to generate lift in the air. The fin is long and narrow (physicists would say it has a high aspect ratio) to reduce the amount of drag produced in generating lift from the water moving by it. To further reduce drag, the fin must be streamlined in cross-section, tear-drop shaped with the fat end at the front and tapered towards the rear, and perfectly smooth. By placing these structures at a given angle of attack (the most efficient angle being dependent on the speed of the forward movement), the fluid which moves around the fin is separated in such a way that a pressure differential is created on either side of the fin. The difference in pressure is such that there is a decreased pressure above the fin and increased pressure below

it (both differentials are relative not only to each other but also to the pressure of the surrounding water), and the fin is both pushed up from below and drawn up from above. The amount of tip vortex is minimized both by the length of the fin and by having the forward surface drawn back into an elliptical shape. The fins are structurally very stiff, with a movable joint only at the base (though there is still some flex along their length).

Though much of the forward force of swimming is generated by waves of sideward motion down the back of the shark, it is the same principles of physics (with a few minor modifications) which allow the tail fin to generate forces which help propel it forward through the water. By reversing the angle of attack of the tail fin on each sideward stroke, the tail is functionally a reversible-pitch reciprocating propeller.

Thus is the second point of my defense: that by using the same principles of aerodynamics which create lift for a bird or airplane, a shark is able to generate lift in a denser medium (water), employing smaller surfaces, and at a lower velocity.

The final proof of my thesis lies in the form and design of the wings of a penguin. Although the penguin developed from ancestors which had the power of flight in the conventional sense (i.e., through the air), these birds have taken up an aquatic existence, and their wings have changed to meet the demands of propelling them through the denser medium of water.

The feathers of the wings have been reduced to small scale-like growths thickly covering the rigid surfaces of the paddle-like limbs. All of the usual flexibility of the ordinary bird's wing is lost, and the wings are capable of movement only from the shoulder. The wings are long and thin, tapering from the front to the rear, and with a sickle-shaped front profile. This is to say that they resemble in every way the form of the pectoral fin of the shark.

The penguin also generates the forward component of its movement through the water with its wings. It accomplishes this by varying the pitch of the wing on the forward and backward strokes of the wing-beat, identical to the way that ordinary birds do during flight through air. The force is generated during the same portion of the stroke in each repetition, and the method of propulsion is that of a pair of variable-pitch propellers. It is with these limbs, finely tuned to generating forces of lift and propulsion in the water, that the penguin literally flies through the seas at respectable speeds (Adele penguins have been clocked in the Antarctic Ocean at speeds of 22 miles per hour).

The major difference between the wing and the fin is one of function. While the fin and the wing are homologous structures - i.e., structures which have the same developmental origin and relative position on the body (thus the human arm, the shark's pectoral fin, the bird's wing, and the horse's foreleg are all homologous structures) - the wing is propulsive in function, and the fin is simply supportive in function. The analogous structures in this case are the penguin wing and the shark tail, both being propellers. Analogous structures are those which carry out the same function but do not necessarily

have the same anatomical origin; thus the bird's wing, the insect's wing, and the folds of skin used by the flying squirrel to glide are analogous structures involved in flight.

In actual fact, sharks "fly" more like airplanes than birds. The difference is that the bird generates both the propulsive force and the lift which keeps it aloft with its wings. In both the shark and the airplane these two forces are separated. The tail and body of the shark are analogous to the engines of the airplane, and the pectoral fins to the wings of the aircraft.

Ancestral fishes which supplied both the components of flight with their pectoral fins are the chimaeras, represented in British Columbia waters by the ratfish, *Hydrolagus colliei*. The earliest fossil evidence of the chimaeras is from the Jurassic period, approximately the same era as *Achaeopteryx*. Ratfishes are cartilaginous fishes which have been described as either "rowing" or "flying" through the water using their pectoral fins in exactly the same manner as a bird does its wings. By altering the pitch of the pectoral fins on the force-generating and recovery strokes, the ratfish slowly flies through the water.

Thus the final point of my thesis that fish learned to fly before birds is that of a bird which, reacting to the environment of the fish, developed a propulsive limb which (incorporating the same physical principles) has the same outward appearance and homologous origin as a shark's pectoral fin and the analogous function of a ratfish's pectoral fins.

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Chronological Plant List

With this fifth and final instalment, we continue to reprint a list of the flowering dates of Victoria's plants, trees, and shrubs which was compiled by botanist M.C. Melburn for the year 1954 and appeared in *The Victoria Naturalist* at that time.

Flowering Date	Family	Scientific Name	Common Name	Location
July 15	Labiatae	<i>Mentha spicata</i>	spearmint	Cadboro Bay
July 23	Boraginaceae	<i>Amsinckia lycopsoides</i>	fiddleneck	Whiffin Spit
July 23	Onagraceae	<i>Oenothera biennis</i>	yellow evening primrose	Sooke
July 23	Compositae	<i>Anaphalis margaritacea</i>	pearly everlasting	Sooke
July 23	Polygonaceae	<i>Rumex occidentalis</i>	western dock	Uplands
July 23	Convolvulaceae	<i>Cuscuta salina</i>	dodder	Whiffin Spit
July 23	Chenopodiaceae	<i>Salicornia ambigua</i>	glasswort	Whiffin Spit
July 23	Cruciferae	<i>Cakile edentula</i>	sea rocket	Whiffin Spit
July 23	Caryophyllaceae	<i>Arenaria peploides</i>	sea purslane	Whiffin Spit
July 28	Compositae	<i>Lactuca scariola</i>	prickly lettuce	Humber Road
July 29	Compositae	<i>Gnaphalium microcephalum</i>	cudweed	John Dean Pk.
July 29	Compositae	<i>Madia madioides</i>	tarweed	John Dean Pk.
July 29	Orchidaceae	<i>Habenaria Michaeli</i>	Michaeli's rein orchid	John Dean Pk.
July 29	Campanulaceae	<i>Campanula Scouleri</i>	Scouler's harebell	John Dean Park
July 31	Malvaceae	<i>Sphaeralcea coccinea</i>	false mallow	Cowichan
Aug 2	Compositae	<i>Solidago lepida</i>	golden-rod	Pat Bay Hwy
Aug 4	Compositae	<i>Arctium minus</i>	common burdock	Clover Pt.
Aug 4	Orchidaceae	<i>Habenaria unalascensis</i>	rein orchid sp.	Ten Mile Pt.
Aug 5	Compositae	<i>Aster Douglasii</i>	Douglas aster	Ten Mile Pt.
Aug 5	Compositae	<i>Grindelia stricta</i> var. <i>autumnalis</i>	gumweed sp.	John Dean Park
Aug 5	Orchidaceae	<i>Peramium decipiens</i>	rattlesnake plantain	John Dean Park
Aug 11	Compositae	<i>Aster occidentalis</i>	western aster	Ivy Green Pk.
Aug 11	Compositae	<i>Tanacetum vulgare</i>	tansy	Ladysmith
Aug 11	Malvaceae	<i>Sidalcea Hendersonii</i>	marsh hollyhock	Comox Spit
Aug 11	Malvaceae	<i>Malva moschatus</i>	musk mallow	Comox Spit
Aug 11	Scrophulariaceae	<i>Linaria vulgare</i>	toad flax	Comox Spit
Aug 11	Compositae	<i>Artemisia campestris</i> sub- <i>sp. pacifica</i>	wormwood	Comox Spit
Aug 12	Compositae	<i>Luina hypoleuca</i>	creamy ragwort	Englishman's River
Aug 12	Compositae	<i>Erigeron ramosus</i>	fleabane	Englishman's River
Aug 12	Compositae	<i>Gnaphalium uliginosum</i>	cudweed	Englishman's River
Aug 12	Compositae	<i>Lactuca spicata</i>	tall lettuce	Cameron Lake
Aug 12	Ranunculaceae	<i>Anemone globosa</i>	windflower	Cameron Lake
Aug 12	Hypericaceae	<i>Hypericum Scouleri</i>	Scouler's St. John's wort	Cameron Lake
Aug 12	Polemoniaceae	<i>Gilia heterophylla</i>	gilia sp.	Cameron Lake
Aug 12	Onagraceae	<i>Epilobium paniculatum</i>	willow herb sp.	Cameron Lake
Aug 12	Saxifragaceae	<i>Boykinia occidentalis</i> var. <i>Vancouverensis</i>	kidney saxifrage	Englishman's River
Aug 12	Compositae	<i>Helianthus</i> sp.	sunflower sp.	Englishman's river
Aug 12	Scrophulariaceae	<i>Penstemon Lyallii</i>	Lyallii	Englishman's River
Aug 12	Leguminosae	<i>Lupinus</i> sp.	lupine sp.	Parksville
Aug 19	Liliaceae	<i>Allium Geyeri</i>	onion sp.	Cattle Pt.
Aug 19	Umbelliferae	<i>Carum Gairdneri</i>	caraway or "yamp"	Cattle Pt.
Aug 29	Compositae	<i>Bidens cernua</i>	bur-marigold	Blenkinsop Rd.
Aug 29	Caryophyllaceae	<i>Silene Scouleri</i>	Scouler's pink	Oak Bay Golf C'rse
Aug 29	Polygonaceae	<i>Polygonum spergulariaeforme</i>	fall knotweed	Oak Bay Golf C'rse

Upcoming Programs

Please meet at the location indicated for each trip. For field trips **BRING A LUNCH** unless otherwise indicated and be equipped for changes in the weather. **Always phone the rare bird alert, 592-3381, the week before** a trip you plan to take in order to obtain full particulars or details about changes (sometimes unavoidable) that have been made. On V.N.H.S. trips participants usually pool vehicles to reduce parking problems and costs. A considerable fuel bill can be run up on a trip, consuming 5 to 10 cents a km. The Board suggests that these costs be shared with the driver. Contact Lyndis Davis at 477-9952 if you want to borrow the Society scope for a scheduled trip.

Do you have ideas for field trips, speakers and workshops? If so, contact the program committee (chairman David Fraser at 479-0016).

SEPTEMBER AND OCTOBER PROGRAMS

Saturday, September 10: Birding at Blackie Spit (mainland). Phone the Rare Bird Alert for more details.

Tuesday, September 13: Milfoil Munchers, with biologist Neville Winchester, a look at the research that is going on at UVIC to find insects that eat this introduced weed. Newcombe Auditorium, Royal B.C. Museum at 8:00 p.m. All welcome.

Sunday, September 25: Birding at Witty's Lagoon. Meet 8:30 a.m. Helmcken Park & Ride or at 9:00 at the Witty's Lagoon Parking Lot. Leader David Pierce.

Wednesday, September 28: Birders Night. 7:30 p.m. at the Swan Lake Nature House - come see the new facility.

Friday, October 7: First evening of the Fall General Meeting of the FBCN, hosted by the Cowichan Naturalists. Registration, social evening and displays night. 7:00 p.m.

Saturday, October 8: Fall FBCN Meeting continues, Inn at the Water, Cowichan Bay.

8:30 am.: Registration (at the Cove).

9:00 am.: Fall General Meeting (at the Cove).

12:00-1:15 p.m.: Lunch (Princess Royal Suite).

6:30 p.m.: Happy Hour.

7:30 p.m.: Banquet and Speaker: Don McMullan, Chief Forester of B.C. Forest Products - Nature and Forestry.

Sunday, October 9: FBCN Weekend continues.

8:30 a.m.: Field Trips to Forestry Research Area, Demonstration Forest and Forestry Museum - they're even starting the train up for us! Buses leave from the Inn at the Water, Cowichan Bay.

6:30 p.m.: Barbeque at the Inn at the Water.

8:00 p.m.: (note time change from FBCN newsletter)

Slide presentations on the Black-tailed Deer of Vancouver Island and the Elk of Vancouver Island.

9:00 p.m.: Owling (see following description).

See the July issue of the B.C. Naturalist for more information on the Fall Federation meeting.

Sunday October 9: Owling in the Cowichan Valley with David F. Fraser. Meet at 9:00 p.m. Inn at the Water, Cowichan Bay. We will look for Barred, Great Horned, Western Screech, Northern Pygmy and Northern Saw-whet Owls at various spots in the Cowichan Valley. Dress warmly and bring a flashlight. Try to wear soft (i.e. not noisy) clothing. A FBCN event.

Tuesday, October 11: Fungi that make Forests Grow, with John Dennis; slide show and talk by David Fraser and Leah Ramsay. **General Meeting** will follow. Newcombe Auditorium, B.C. Provincial Museum at 8:00 P.M. All welcome.

Saturday, October 15: Birding at Goldstream. Dippers, thrushes and other Goldstream specialties will be sought. Meet at 8:15 at the Helmcken Park & Ride or 8:30 at the Goldstream Parking Lot. Leader Mike McGrenere.

Tuesday, October 18: Botany Night at the BCPM classroom, 7:30 p.m. An introduction to mushrooms with Adolf and Oluna Ceska. The first Botany Night of the year.

Wednesday, October 26: Birders Night. 7:30 p.m. Swan Lake Nature House. Members' Night. Bring some slides (max. 10) along.

Sunday, October 30: Birding at Cordova Spit. Meet at the KOA Campground at Cordova Spit (turn R going north on the Pat Bay Highway at the Waddling Dog) at 9:30 a.m. Leader, Mike Edgell.

SOME UPCOMING PROGRAMS

January Winter Natural History Trip to the B.C. Interior. Here is a trip to add some lifers - Great Gray Owl, Boreal Owl, Redpolls, Rosy Finches, Big Horn Sheep, Elk and Pine Grosbeaks. We are considering organizing a 4 night/5 day trip to the interior of B.C. in late January. Is anyone out there interested in such a trip? If so call David Fraser at 479-0016.

May Trip to the Grand Canyon. Here is an opportunity to see the flora and fauna of the south end of the Great Basin and Grand Canyon Country in the Spring. Stops at the spectacular Bryce and Zion National Monuments Area are also in our itinerary. We'll drive down from here for those wishing a longer trip and can pick up others wishing a shorter stop in Phoenix Arizona. A special Victoria Natural History Society Trip organized through Swiftsure Tours. Call 388-4227 for more information.

Wildlife Garden

By Tracey Hooper

Gardening therapy - ever heard of it? For centuries, gardeners have recognized the physical and mental benefits of getting a little dirt under their fingernails, but only recently have psychiatrists and psychologists begun recommending gardening as therapy for their clients. If you love to garden, or if you need time to unwind at the end of a busy work week, here's the perfect solution.

The Victoria Natural History Society is planning to apply to the Public Conservation Assistance Fund for funds to construct a demonstration garden for attracting wildlife. The idea is to show city gardeners what types of plants to grow and what types of structures to add (eg. ponds, nest boxes, etc.) to attract insects, birds and small mammals to their backyards. Space for the garden may be available at the new Swan Lake Nature Centre.

Before plans for the garden can proceed, though, we need to know how much enthusiasm can be generated among the Society's members. We need creative ideas for the design, burly muscles for the construction, and keen dedication to the maintenance of our wildlife garden. I know there are lots of green thumbs out there. If you don't have the brawn, lend us your brains. Don't hide behind your copies of *The Pacific Gardener* -- if you can help, give me a call at 479-7216 (8-9 a.m. or 5:30-7 p.m.), or send me a note to 4291 Burbank Crescent, Victoria V8Z 6T4.

Naturalists' Guide

In the year 1967 our Society published, through the B.C. Nature Council (now the Federation of B.C. Naturalists), a small book entitled *Naturalists' Guide to the Victoria Region*. It was edited by R. Yorke Edwards, who also contributed the first article. Geology was covered by Mr. A.H. Marion in his article "The Architecture of Victoria and Vicinity" and botany by Miss M.C. Melburn in "Botanizing on Southern Vancouver Island". Dr. G. Clifford Carl, the Museum's director and a marine biologist, wrote on "Between Tides on Southern Vancouver Island," while David Stirling's article was on the birds of the area, our favourite subject.

The Society's library at our house does not have a copy, and I have diligently searched, and I wonder if any long-time member has a spare copy.

A.R. Davidson

Welcome to New Members

- | | |
|---------|--|
| Apr. 7 | J. Severin, of Satellite Street. |
| Apr. 7 | Christian Englestoft-Nielsen, of Glasgow Avenue. |
| Apr. 7 | David Greer, of Crescent Road. |
| Apr. 12 | Dorothy Kelly, of Roseberry Avenue. Particular interest: "Many things." |
| Apr. 12 | Michelle Gorman, of Quimper Street. Michelle provided the program at our April general meeting. |
| Apr. 13 | Orval and Joan Oppertshauer, of Cedar Hill Road. Interests: mainly birding. Also botany; wildflowers; and a general interest in the outdoors and nature. Also enjoy gardening, hiking, and interested in marine life. Recently from Ontario. |
| Apr. 14 | Jeri Bass and Diane Wells, of Page Avenue. Interests: birds; ethnobotany; naturalist. |
| Apr. 14 | Miyo Stevens, of Sooke. Interested in bird-watching and herbs. |
| Apr. 20 | Albert and Freda Loro, of Foul Bay Road. Interested in birds and microscopy. |
| Apr. 22 | Christoph and Lisa Glaser, of Nancy Hanks Street. Recently from Toronto. |
| Apr. 22 | Dr. and Mrs. J.D. Campbell, of Toronto Street. |
| Apr. 28 | Rudolf and Erna Kind, of Gilbert Drive. |
| May 2 | Mr. and Mrs. Terry M. Moore, of Sparton Road. Interests: "You name it. I would say we are eager amateurs with eclectic tastes." |
| May 11 | Trina Foster, of Lampson Street. Into habitat biology; whale biology; and herpetology. |
| May 16 | Kim Scott, of Foul Bay Road. |
| May 26 | Tom and Kathleen Williams, of Pembroke Street. Interests: birds; birdwatching. |
| May 30 | George I. Olive, of Sidney. Recently relocated from Ottawa. Interested in birding. |
| June 3 | Susan Fergusson, of West Saanich Road. Interests: birding and wildflowers. |
| June 6 | Kendra Strauss, of Belmont Avenue. Interests: marine biology; botany; nature illustration. |
| July 5 | Joyce and Richard Taylor, of Aquarius Road. Interested in field trips; birding; hikes and introductory workshops. |
| July 11 | Jack Arrand, of Maxine Lane. |
| July 11 | Marilyn Arnold and Richard Riopel, of Esquimalt Road. Especially interested in wildflowers; also birding; also in attending lectures and guided tours. They find <i>The Naturalist's Guide to the Victoria Region</i> very helpful. |
| July 11 | Don Benson, of Cardero Street, Vancouver. Interests: botany; ornithology; geology |
| July 11 | Peter Axhorn, of Sooke. Particular interests: birding and wildlife sculpture. |
| July 12 | Christine Rushforth, of Llandaff Place. Interests: archeology and birding. |
| July 12 | Cyril P. Axhorn, of Saanich Road. |
| July 12 | Barbara Cumming, of Richmond Avenue. |
| July 28 | Gwen Staton, of Edgemont Road. |
| July 29 | Dr. and Mrs. H. Cranz, of Sidney. |

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