

WAGNER NATURAL AREA NEWSLETTER

#306, 10630 - 122 Street, Edmonton T5N 1M8
(Editor: Terry Thormin) 482-1389



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June 15 Field Day Hourly Guided Field Tours of Wagner Natural Area

Everyone Welcome - 1 pm to 5 pm, Saturday

See some of the special flora and fauna of Wagner including orchids and carnivorous plants!

MEMBERSHIP

This issue of the Wagner Newsletter is just a bit late in coming out; it should have come out in November of 1990. As a result, this membership renewal notice is also late. Nonetheless, it is time to renew your membership for 1991 if you have not already done so.

Membership Form

Please include me as a member of the Wagner Natural Area Society!

In addition to my membership fee, I enclose a gift to support the activities of the Wagner Natural Area Society.

_____ Family \$12

Name _____

_____ Individual 10

Address _____

_____ Student 8

City _____

_____ Retired 8

Province _____

Postal Code _____

Telephone Number _____

BILL MORGAN

In December of 1990 Bill Morgan passed away. Bill did a lot for conservation and he will be missed, particularly by the members of the Wagner Natural Area Society. At the November 1990 executive meeting, we decided to name the creek in Lot 14, Morgan Creek. This is a rather small memorial to a man who did so much towards preserving the Wagner Natural Area. It will serve as a constant reminder of just how much we owe to Bill Morgan.

CLEAN-UP DAY

Saturday, May the 4th is the date for our annual spring clean-up at Wagner. Everyone is welcome! We will meet at the main gate at 10:00 a.m., bring gloves and work clothes.

ANNUAL TOAD WALK

May 8, 7:00pm - meet at main gate. Bring rubber boots and dress for the weather.

Everyone welcome!

Wayne Roberts will lead this 5th annual exploration through Wagner Natural Area, looking and listening for amphibians.

EDMONTON PLANT STUDY GROUP

The Edmonton Plant Study Group is looking for volunteers to help with processing plant specimens at the University of Alberta. If you would like to learn more about how the herbarium works and what goes into the making of a collection, this would be the perfect opportunity. We are hoping to arrange the first session for one Saturday in April.

If you are willing to spend a couple of hours mounting plants etc., please contact Joyce Gould, 449-6619 or 427-5209.

Wagner Natural Area Society

c/o Terry Thormin

#306, 10630 122 Street

Edmonton ALBERTA

T5N 1M8

HIGHLIGHTS OF THE PLANT YEAR IN WAGNER

May Count 1990

The annual May Count of Flowering Plants in flower was carried out in Wagner on May 27th last year, with Diana Barager, Alice Hendry, Barry and Mike Jenkins and me taking part. We came up with 53 species in flower, comparable with the 48 species recorded last year, but low in comparison with some years' tallies, for example, an astonishing 82 in 1988. Although disappointing in human terms, this was a scientifically valid result, as we covered roughly the same territory and spent about the same amount of time searching as last year. The low numbers can be attributed to the lateness of the spring, although we did miss finding one or two species that we habitually check for, and therefore could not know what their phenological state was. A good find was of Calypso orchids in flower, again along the Cabin Trail, close to, but not at the identical spot where they were found last year. A surprising find was of Mare's-tail in flower, on the beaver dam at the dugout in the east end. An aquatic plant, like many aquatics *Hippuris vulgaris* tends to appear around mid-summer and later.

Monitoring of Malaxis paludosa

On July 19th, Alice Hendry and I checked out the main clump of Bog Adder's-mouth orchids (*Malaxis paludosa*) that was found last season by Matt Fairbarns. They are in the south east corner of the property, growing in a typical Black Spruce-Tamarack-Labrador Tea-moss association adjacent to rich fens. We found a cluster of 10 stems bearing flowers, and one stem, which was slightly removed (by a few centimetres) from the rest of the clump, in a vegetative state. We subsequently found two more plants in a moss hummock along a hare run slightly to the north of the main cluster, but though we searched thoroughly we saw no additional plants after this. We did not systematically check out any of the other sites in Wagner recorded by Matt, an omission that we should probably repair next year. Later we moved north and west to look for *Malaxis monophylla*, which Alice had seen previously in the vicinity. It was an unproductive search in deepening crepuscular gloom until

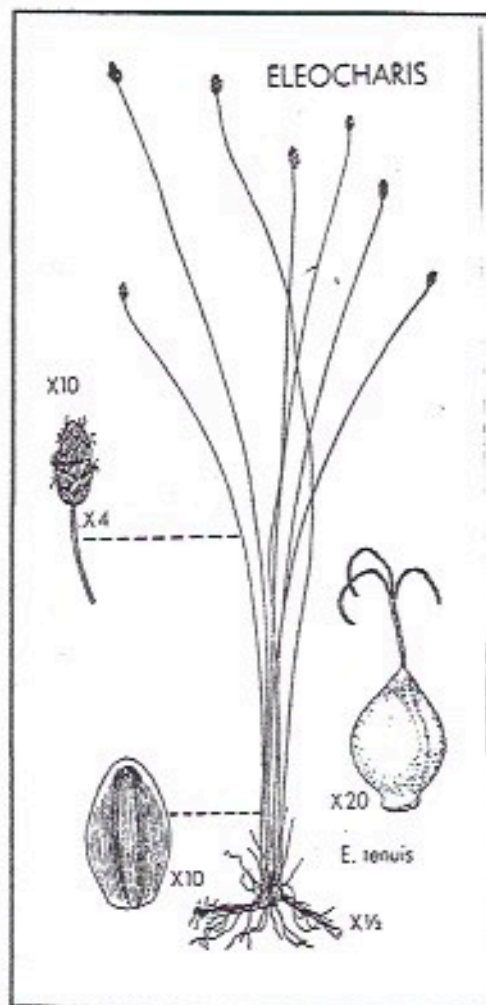
finally Alice's eagle eye alighted on one plant. It was well hidden among the tall marsh vegetation of the road right-of-way (Villeneuve extension).

On a second visit on August 18th I returned to the same clump of *Malaxis paludosa* and found 11 stems in fruiting stage, as well as one, a little apart from the rest, that was still in flower. The eleven stems produced only six green capsules between them, or slightly more than half a capsule per plant. This hardly seems a high rate of fruit production, although on the other hand it is better than last year's outcome, when all the stems in the main cluster were nipped off just below the inflorescence, apparently by a herbivore. I could not relocate the two outlying plants.

A Rare Spike Rush, Eleocharis elliptica

On June 23rd, while leading a field trip for the Orchid Society of Alberta, Mike Jenkins, this season's S.T.E.P.

employee, and I spotted a distinctive looking Spike Rush in the fens in the south east corner of Wagner Natural Area. The white stigmas of the minute flowers in the spikes were protruding en masse, so that carried aloft on naked stems these spikes were eye-catching white "knobs". Guessing that these plants were something "different", I collected several of the flowering stems, as well as the robust horizontal stems or rhizomes connecting them. These plants proved to resemble closely herbarium specimens of plants collected in calcareous fens in the vicinity of Connor Creek (near Mayerthore) by the late George Pegg, and labelled *Eleocharis elliptica* Kunth. However, to definitively identify this species one needs to see the characteristics of the mature fruits, so I returned to the same site on July 19th and again on August 18th to collect more plants. (By now, however no longer in flower, they were much less obvious, merging in with the general fen vegetation). From these specimens Derek Johnson, of the Northern Forestry Centre, Forestry Canada, has since verified the species using



Eleocharis tenuis var. *borealis*

Scoggan's *Flora of Canada* (1979), as *Eleocharis tenuis* var. *borealis* (synonymous according to Scoggan with *E. elliptica*), a species that Derek knows from fens ("though not necessarily rich ones") in Saskatchewan and Manitoba. In Alberta, *E. elliptica* has been confused with *E. compressa* Sullivant and is listed under the latter in *Flora of Alberta* (1983). However, E.H. Moss's specimens of *E. compressa* collected in "swampy ground" near Jasper look distinctly different from Pegg's *E. elliptica* specimens from the Mayerthorpe area. Scoggan treats them as separate species in *Flora of Canada* with *E. compressa* Sullivant as synonymous with *E. tenuis* var. *atrata* not var. *borealis*. *E. compressa* is listed by Natural Areas staff as a rare species in Alberta and presumably *E. elliptica* is rare too, which would partly explain their confusion.

Thus our Wagner Spike Rush has all the mystery and mystique associated with rare plants and the reasons for their sporadic and sparse distributions. The intriguing question is: has this species existed in Wagner for some (or even a long) time, or has it recently become established? As Wagner has been intensively botanized for about four decades I personally doubt that it could have been consistently overlooked, even though it is

inconspicuous for much of the year. However, other people have different opinions. It will certainly be fun to monitor the species from now on to see whether it will disappear (and possibly reappear later), hold on or even spread.

An Unusual Aquatic

On August 18th I also visited the dugout on the east side of the property. This was much extended and flooded earlier this year by beaver activity, but by late summer the water level had fallen very low. On the exposed mud banks, which were already being colonized, I found several rosettes of Mud-wort, *Limosella aquatica*, with tiny white flowers nestling down amongst the leaves. This is an aquatic and littoral plant of the Scrophulariaceae family. An annual, it cannot unfortunately be relied upon to reappear next year, but it can be added to the Wagner species list and should be looked for again in subsequent years. According to Graham and Deirdre Griffiths it has been found also in North Cooking Lake Natural Area in Strathcona County, so clearly it does occur sporadically in the Edmonton area.

Patsy Cotterill

TRIBUTE TO BILL MORGAN: by Edgar T. Jones

Prior to the establishment of the Wagner property, I had spent a good amount of my time visiting the Wagner property to film and photograph flowers and wildlife of the area. Many of the pictures taken during this time were used in my films as a lecturer on conservation for the National Audubon Society, New York City and in a series of educational programs for the school children of Alberta. Many thousands saw these programs which were personally presented by Dr. Cy Hampson and myself throughout our school systems. No financial help was available at that time.

In the course of filming such unusual subjects as Bonaparte Gulls, Solitary Sandpipers, Lesser Yellowlegs and many other species nesting on the Wagner property at that time we came to know the owner Bill Wagner very well. It was during these years, in the 1950's and early 1960's that I decided a sincere attempt should be made to raise funds to acquire this property from Mr. Wagner. A great effort was put into submittals to Shell Oil, Red Rose Team, Imperial Oil and many others with little results as the environment and preservation of it meant very little during those years.

Bill (W.R.) Morgan joined the Alberta Wildlife Foundation in 1970 and immediately commenced to work on the acquisition of the Wagner property as Managing/Director. An option was secured to acquire the 320 acres and much effort was put into raising the funds necessary. Through Bill's discussions with Dr. Ed Ballantyne, at that time, the Deputy Minister of the Environment, the balance

of funds was secured to purchase the property. Nature Conservancy of Canada also contributed financially to the conclusion of the purchase just prior to the option expiry date.

The land secured, Bill Morgan then obtained money from a S.T.E.P. program and hired Dr. Gerhard Beniak to do a complete study of the flora and fauna of the property using students from the University of Alberta. This thorough and excellent study was carried out over a two year period in 1973 and copies of the study, photographs and samples were provided for the University of Alberta, the Provincial Museum and the Public and Separate School Boards.

It is interesting to note that in the mid 1970's much time was spent by Bill Morgan negotiating with the Department of Highways as they proposed to extend Hwy 16X through 300' of the north boundary of the Wagner property. After many meetings and heated discussions with Dr. Hugh Horner, Minister of Highways at that time, Bill finally convinced him that the damage of taking 300' off the north side of the property would cause great problems for the proposed environmental centre. The Department of Highways then agreed to shift the highway north for the mile along the north boundary (118 Avenue).

This is just part of the story as to how the present Wagner facility came to be and is ample reason in itself to name the creek on the east side of Wagner as "Morgan Creek".

WAGNER NATURAL AREA S.T.E.P. NATURALIST/CUSTODIAN REPORT 1990

Michael Jenkins

This was my second summer as the Naturalist/Custodian for the Wagner Natural Area. I had just completed my third year of B.Sc. in Palaeontology at the University of Alberta. Most of my duties were custodial in nature such as repair and maintenance on the Marl Pond and Cabin Trails, cleaning the picnic shelter and outhouses, and pulling as much Scentless Camomile (Unknown unknown) as possible out of the main road. Some of the more unusual repair duties included killing a nest of yellowjackets that had decided to take up residence on the side of the women's outhouse (the same outhouse that had Eastern phoebes nesting in it last year). The yellowjacket nest required the application of an entire can of wasp killer, over the course of two nights before it was finally silenced. Another unusual task was the placing of a drainage culvert in a dam that a family of beavers had constructed on the dugout on the west side of the area. The dam extended at least five hundred feet through the woods, and had flooded out a neighbouring farmer's field. A team of four, including a volunteer and two Natural Areas employees, as well as myself, worked to insert the culvert.

As a naturalist, I performed two surveys this year. The first was the annual breeding bird survey. This entailed walking a loop that encompassed the entire Natural Area, each morning at dawn. The survey was done late May/early June, when dawn comes just after 3:30 a.m. (which is much too early for normal humans to be awake), and the mosquitoes are out in their largest numbers. One of the main differences between this and last year's bird survey that I noticed was how much my birding skills had improved. This year, I rarely needed a bird guide, and could identify many birds by song alone.

The heavy downpour on June 22nd that caused widespread flooding in the province created floods at Wagner as well. The creek near the parking lot rose from less than two feet to almost six feet in depth, and the beaver dam was overflowing, even with the drainage culvert. This flooding resulted in brook stickleback (Culaea inconstans) in the ponds beside the Marl Pond Trail, where there had been none in previous years.

Following the downpour, however, was a long period of warm, dry weather. This caused water levels to drop drastically throughout the area. By late July, the water in the dugout was about two feet below the drainage culvert, the creek had dropped to about a foot, and the marl ponds were completely dry. The drying up of the marl ponds killed off many tadpoles, as well as the stickleback that had moved. Fortunately, many tadpoles had already transformed to frogs and toads, and Jones' Pond in the centre of the area maintained its water level, and a large population of stickleback.

The low water levels had an adverse effect on the second survey I performed. I was trying to survey what kinds of aquatic invertebrates lived in the creek on the east end of the area, that would have been destroyed in the original road proposal. With the drought, several of the small tributaries I was sampling dried up completely, and the others all dropped drastically. My survey turned up very few invertebrates, and a low species diversity. Almost everything I caught was a predator (such as diving beetles and dragonfly larvae), with a very low number of herbivores. Perhaps surveys in coming years might obtain better results.

THE ROAD ISSUE

On January 21, 1991 Alberta Transportation and Utilities issued a news release stating that they had "accepted the recommendations of the environmental impact assessment (EIA) undertaken near the Wagner Natural Area for the proposed interchange and local connecting road at the junction of Highway 16X and Secondary Highway 794". The release went on: "The primary recommendation of the assessment was that the interchange and connecting roadway should not be built at the location originally proposed by the department. 'In accordance with this finding', said Minister Adair, 'I have instructed the department to immediately begin detailed engineering investigations to relocate the proposed interchange as far east as possible'."

The other significant statement from the Minister was that "all lands surplus to the needs of Alberta Transportation and Utilities south of Highway 16X and west of the connecting roadway will be turned over to Alberta Forestry, Lands and Wildlife to be incorporated into the Natural Area".

After more than two years of lobbying, letter writing, meetings, both private and public and a major environmental impact study culminating in a document over 1000 pages long, Alberta Transportation and Utilities has made a decision that the Society feels it can live with. We would have preferred no road at all, but if the road is moved far enough eastward it will have little impact on the Natural Area.

We have not as yet seen any realignment plans and we will be pursuing this closely. Once these plans are made public, we will advise our members via the newsletter. At that time we will also know what additional land will be added to the Natural Area. We will, of course, keep a close watch on the road construction at all phases.

It should be noted that this is the first time that Alberta Transportation and Utilities had an EIA conducted on a proposed road construction. More significantly, it is the first time a road has been realigned because of environmental concerns. For this we heartily applaud Alberta Transportation and Utilities.

At a time when environmental issues are often uppermost in the minds of the public, it is good to see that our government can give credence to such issues and change their plans to save a unique habitat and some rare plants. Maybe this is the beginning of a new era when governments do listen to the public and are willing to seriously give some consideration to the environment before proceeding with development.

It would be remiss of us if we did not say a word of thanks to Spencer Environmental Management Services Ltd., for the fine job they did on producing the Environmental Impact Study.

AMPHIBIANS OF THE WAGNER NATURAL AREA

(with notes on distribution and variation)

Why are frogs and toads in the field sometimes difficult to identify from pictures in guide books? What is the connection between a Tiger Salamander and a Pocket Gopher? What are the possible causes of the population crash of Leopard Frogs since 1978/79? Did you know that toads' eggs are sometimes laid right on top of frogs' eggs? That garter snakes sometimes spend the night in trees, especially in the fall? Chances are that if you know the answers to these questions you are either an expert on amphibians and reptiles, or you have been listening to Wayne Roberts, Curator of the Zoology Museum at the University of Alberta, expound on one of his favourite themes.

On October 11th at the first annual members' night of the Wagner Society, held in the Provincial Museum, Wayne gave us another fascinating glimpse of his first-hand experience and extensive knowledge of frogs, toads, and snakes, with especial reference to their distribution in Alberta, and their presence — or absence — in Wagner Natural Area.

Salamanders, frogs and toads all vary considerably in colour and markings, and thus can be hard to identify from illustrations in guide books. These often portray generalized representations of the species or a photograph of someone's idea of a "typical" specimen rather than variety of actual

specimens. Tiger Salamanders, common in the Edmonton area and present in Wagner though infrequently seen, provide an example of variability in pattern. While many individuals have the black and yellow "tiger" stripes some individuals have small black spots rather than stripes on the green, yellow or grey background. Interestingly, all the individuals with black spots that Wayne has found in Alberta have been males. Others have large yellow spots on a dark background.

The occurrence of amphibians and snakes in an area probably depends on whether there are suitable overwintering sites and conditions in the vicinity. Some local amphibians and snakes make use of burrowing mammals' dens to provide themselves with shelter and overwintering sites. Thus Tiger Salamanders are often found in the mounds of Northern Pocket Gophers in summer. As well as a food supply of invertebrates in the loose soil, the extensive underground system of gopher tunnels gives them access to shelter below the freezing line. Richardson's Ground Squirrels' burrows also provide shelter for salamanders, although not year-round as they may not penetrate below the frost line. Canadian Toads likewise make use of Pocket Gopher mounds for temporary shelter but must dig below the frost line to successfully overwinter. Western Toads, however, may use the warm microhabitat along spring-fed creeks, or may make use of beaver lodges as overwintering sites.

Tiny boreal chorus frogs, which occur in Wagner, often overwinter in anthills, rotting logs, or other dry sites with a high insulating value. A physiological mechanism that pumps sugar into their blood (???) allows them to supercool without ill effect. Wood Frogs are also frost tolerant and also overwinter underground in dry, loose substrate. (**Where do they overwinter, or how?**) The development of mechanisms of frost tolerance, and the exploitation of mammalian earthworkings, are clearly adaptations that have helped some amphibians to spread outwards from their tropical centers of origin and colonize northerly locations such as Canada.

Wood Frogs, the commonest frog in Wagner, show great variation in colour and marking. (In Alberta, about 50% have a mid-dorsal stripe, compared with 20% to the east in the Prairie, as much as 80% in the James Bay region and 0% in southern Ontario in the west in general). Many females may lay their eggs in one spot, a type of spawning that provides thermal insulation.

Leopard frogs unfortunately do not occur in Wagner, although they recently occurred as close as Kilini Creek, northwest of Stony Plain. In Alberta they disappeared from about 95% of their previous known sites after the winter of 1978/79, for reasons that are not clear, and probably complex. Severe winters? Destruction of overwintering habitat? Pollution, affecting their immune systems and thus their ability to resist disease? (They are known to be susceptible to UV radiation). They cannot withstand freezing, so they must overwinter in clean, open, well oxygenated water, in places where they may experience some predation by large fish. Despite these exacting requirements, many of their habitats seem as good today as they were a decade ago. Wayne is experimenting with re-introducing Leopard Frogs on his property in the Red Deer area.

Canadian Toads occur just about all around Wagner Natural Area, but not in it. In Wagner another species, the Western or Boreal Toad, reigns supreme. (Canadian and Western Toads often do not occur together; when they do they can hybridize). Western Toads can be very brightly coloured, mottled black, white and red, for example, but most individuals are mottled greens and browns. Some young Canadian Toads are rusty coloured. The herding behavior shown by toad tadpoles (watch the marl ponds for evidence of this) persists for some time after transformation, although eventually the individuals disperse. Wagner's population of Western Toads is probably a relict one, the remains of a more widely distributed population inhabiting more extensive tracts of the same kind of present-day habitat prior to clearing of adjacent land.

Red-sided Garter Snakes have not been found in Wagner, although they occur nearby, for example, at Kilini Creek, in the Glory Hills, and in the North Saskatchewan River Valley. The habitat at Wagner is suitable, and there is plenty of food for them — sticklebacks, frogs, and salamanders. Their absence may be due to a lack of overwintering sites, such as fractured rock beds along the river, or gravel beds as at Kilini Creek. Wandering Garter Snakes are also absent locally, though they occur in the Peace River area, at Jasper, and in the Red Deer River badlands. Plains Garter Snakes are common east and south of the Edmonton area. Snakes too, exploit mammal burrows for shelter, and have even adapted to human habitation: they are known to use cellars, root cellars, basements and mineshafts, in addition to natural cavities and caverns, as hibernacula. Incidentally, garter snakes sleeping in trees are thought to be escaping early ground frosts!

BLOOM COUNTY



BY BERKE BREATHED

