

WAGNER NATURAL AREA NEWSLETTER

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Newsletter of the Wagner Natural Area Society, Management Committee
and Volunteer Stewards of Wagner Natural Area, Parkland County, Alberta



Wagner Natural Area Adds Another Quarter-Section to the South!



From left, Doug Horner, MLA for Spruce Grove-Sturgeon-St. Albert, Wagner President Irl Miller and Minister of Community Development Gene Zwozdesky cutting the tape on June 26, 2001 to signify the expansion of the Wagner Natural Area by the addition of a quarter section.

Photo by Fred Moffatt

Wagner Natural Area Society executive and supporters are still pinching themselves to make sure they're awake: adding another quarter section of land to the southeast, formerly the property of the late Mrs. Porter and until very recently that of the Mullback family, is a dream come true for defenders of the natural area. The government of Alberta, which purchased the quarter section for \$400,000, and all who were involved in the deal, deserve full congratulations for recognizing the value of this addition and, with the cooperation of the landowner, working promptly to complete the transaction. Adding this amount of acreage, 160 acres or 65 hectares, is a giant step forward in ensuring the protection of the water recharge area for Wagner, the area where precipitation infiltrates the ground and supplies water to the springs which feed the fens and the other peatland ecosystems that define Wagner. The Alberta government acted promptly in response to this once-only opportunity, putting the acquisition ahead of other land purchases on the government's waiting list for protected areas. The new quarter represents an extension of Wagner's peatland and marl fen ecosystems to the north, as well as including some disturbed land and haying land, which the Mullbacks will continue to farm, in the south. With the addition

over the last 10 years of two areas to the east (2) of the original half section (marked 1 on the map overleaf), the Oxley property of 34 acres and about 20 acres in lots 14 and 13, this new quarter brings the total area of Wagner Natural Area to some 534 acres or 216 hectares. As President Irl Miller remarks, "this only leaves the (south) western flank unprotected."

A tape-cutting ceremony was held on site on June 26, 2001 to celebrate the addition. Crammed into the picnic shelter against the steady rain were numerous politicians, provincial government administrators, Provincial Museum scientists, Wagner Society executive, neighbourhood residents, **Heather von Hauff**, a University of Alberta student doing hydrological research in Wagner, and friends, along with **Chester Mullback** representing the vendor. *(continued next page)*

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Gene Zwozdesky, Minister of Community Development, **John Kristensen**, Assistant Deputy Minister, Parks and Protected Areas, Community Development, **Doug Horner**, MLA for Spruce Grove-Sturgeon-St Albert and **John Williams**, MP for St. Albert, **Elsie Kinsey**, Reeve of Parkland County and Wagner Society president **Irl Miller** all spoke on the significance of the natural area and the contributions to stewardship made by volunteers over the past 25 years. Also present was **Peter Lee**, who as

a former provincial government employee initiated the Natural Area Volunteer Stewards Program and promoted Wagner as a “flagship” natural area. **Rayma Peterson**, a local artist and botanist, assisted with the unveiling of her painting of orchids in Wagner, indicating Wagner’s significance as an orchid preserve. Unable to attend was **Stan Woloshyn**, MLA for Stony Plain and long-time supporter and promoter of Wagner. Once again, congratulations and thanks to all concerned for a remarkable achievement in environmental protection!



Legend to Map

- 1 Original quarter-section
- 2 Oxley property and parts of lots 14 and 13
- 3 New quarter-section



The Wagner Grapevine



Wagner Wins Development Appeal!

Wagner Society won its appeal against development north of the natural area and Highway 16 at a Parkland County Subdivision and Development Appeal Board hearing on April 9. Dr. **Ben Rostron**, a hydrogeology and engineering professor at the University of Alberta and an executive director of the Wagner Society, successfully argued that scientific evidence, including that obtained from computer modeling, indicated that the excavated fish ponds on the neighbouring property could withdraw groundwater from Wagner Natural Area and thus harm its ecosystems. This decision has been appealed by the developer and is now before the courts.

Volunteer Stewards’ Weekend at Wabamun

Appropriately for the Year of the Volunteer, the Alberta government hosted a weekend for its volunteers in Parks and Protected Areas May 4-6 at Lake Wabamun Provincial Park and village. Wagner Society guided field trips for

conference-goers on the Saturday and Sunday (special thanks to **Derek Johnson** and **Irl Miller** for their comprehensive commentaries). Other field trips were to the Sundance electricity generating plant in the vicinity of Wabamun, which was very, er, illuminating for those who attended. (Turn off those lights, guys, there’s a lot more to electricity than the flick of a switch!) Wagner also contributed with its table-top display (thanks to **Pat Clayton** who manned it) and by hosting a cash bar, which made a small profit, thanks to the generosity of some of the imbibers and the efforts of Irl. Congratulations to all those who won awards—an impressive record of volunteer achievement—and last but not least to **Sandra Myers**, coordinator of the Volunteer Program, for her dedicated service over the years. She got a standing ovation!

In Search of the Source of Wagner's Water

By Heather von Hauff

Early in April, 2001 the Elk Point Drilling Company, together with students from NAIT's Hydrogeological Technology program and Heather von Hauff, a master's student from the University of Alberta, drilled two wells in the main field at the start of the Marl Pond Trail to help determine the origin of the groundwater that feeds the Wagner Natural Area. Strictly speaking, one well is a piezometer, which is used for observation, while the other is a true well that taps the area's aquifer.

The wells are being used to provide data for von Hauff's master's thesis on the Natural Area's groundwater flow system. The results of her research could be used to develop land-use guidelines to protect this unique site.

Von Hauff will use the information, obtained from these and other wells in the area, such as water levels, chemistry and lithology, to develop a three-dimensional numerical model of the groundwater flow in the area. The model will be used to better define the recharge area and assess how development within the recharge area might affect the fen.

A recharge area is the area where precipitation infiltrates the ground and becomes groundwater. The recharge area for Wagner is believed to be four to six kilometers south of the site and is under increasing threat from urban development. Unfortunately, the traditional approach of putting a fence around this unique fen cannot protect it from the effects of development outside its perimeter.

Von Hauff's research is being supervised by Drs. Ben Rostron and Carl Mendoza. Both are faculty members in the Department of Earth and Atmospheric Science at the University of Alberta. The drilling activities are a cooperative project with NAIT under the supervision of Matt Cohen and supported by Rice Engineering and Elk Point Drilling. Alberta Environment has provided detailed information on other wells in the area to von Hauff, who will incorporate this data into her research.

Von Hauff plans to complete her research and defend her thesis by December 2002.

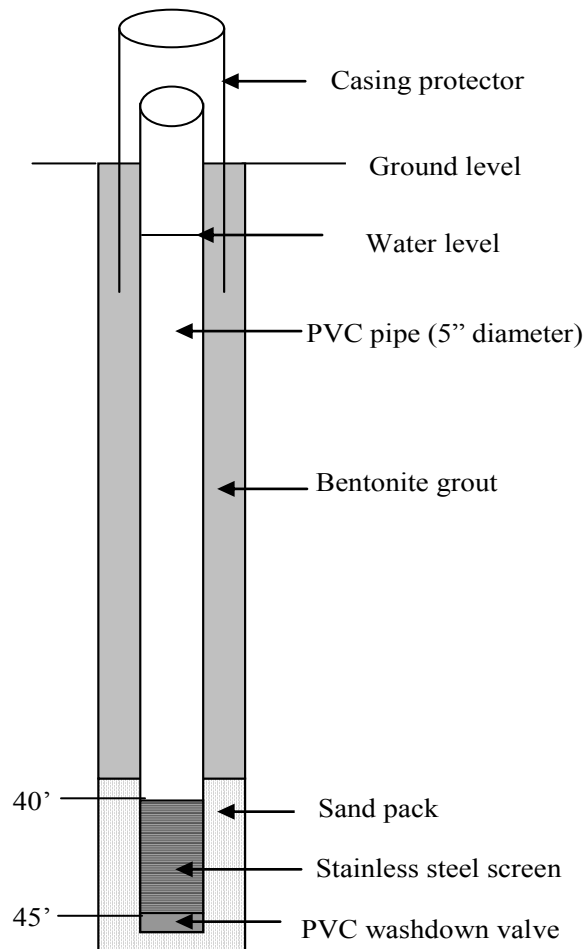


Diagram of the well installed at Wagner Natural Area

The borehole was drilled using a mud rotary rig. The well consists of a PVC casing and a stainless steel slotted screen. The screen allows water to enter the well, while keeping out soil, sand or other material. The sand pack ensures that water from the aquifer flows easily into the well. Bentonite grout was used to ensure that water does not leak along the borehole. Water rises in the well due to pressure in the aquifer.

Wells in Wagner, 2001



Shown opposite is the third and largest well dug (the first, dug just inside the main gate, did not connect with the aquifer). Located in the central hay field south of the picnic shelter it was initially drilled to a 5-inch diameter hole, but was re-drilled to 7 inches and fully installed with a screen and casing. Water depth can be determined from this well, and samples withdrawn for quality testing, as they can from the second well (farther to the north). Water can also be pumped from this well and the time taken to re-fill measured to determine the rate of recharge.



Setting up the drill bit on the above well.

Installing the screen (5-inch) and plastic pipe (see diagram on page 3).



Bird Banding Report for 2001

by Edgar T. Jones

With the help of John Klem I banded the contents of 34 boxes on the N and W sides of the property. In the course of two and a half hours starting at 12:30 p.m. I banded 91 tree swallows; in only one nest were the birds too small to band. This compared very favourably with the previous two seasons in which he had banded 61 and 60 birds, respectively. The cause for the increase was likely the continuity of clutch size and age, which meant the vast majority of birds were old enough to band. The average brood size was six to seven nestlings, and I found one with eight, an unusually large brood.

The late start to nesting probably contributed to the success so far. We can only hope that rainy spells do not last too long to allow the birds to complete nesting successfully. Cold, rain and winds are the enemy of young nestlings as they can lead to hypothermia and starvation due to lack of insect food.

I brought out four boxes that were too damaged to be fit for use, and found an additional five boxes empty. Unlike last year unfortunately, no bluebirds were encountered this year, unlike last.

Mike Jenkins, Director



Mike's involvement with the Wagner Natural Area goes back a long time. "After I got my Learner's Permit, the first place I actually drove a car was on the road to the Wagner parking lot".

In 1989, while studying at the University of Alberta for a degree in Paleontology, Mike worked for Wagner over the summer as a naturalist/custodian. He had great fun amongst the mosquitoes, catching Brook Stickleback, Fathead Minnows and more than a few Boreal Toads while trying to map out the occurrences of fish in the Marl Ponds. As a novice birder, he also had fun learning the calls of the exotic-looking White-Throated Sparrow

and Red-Eyed Vireo. He even learned important lessons in carpentry and hydrogeology while repairing the boardwalks in (what turned out to be) chest-deep marl!

A course in aquatic invertebrates of Alberta piqued his interest, and he returned for another season as summer student in 1990, when he performed a mini-survey of the aquatic invertebrates of Morgan Creek. We're still waiting for the results!

It should be noted that 1989 and 1990 are on record as being the worst years ever for mosquitoes in the Edmonton area. His experience with Wagner's mosquitoes naturally led Mike to a position as a Biological Sciences Technical Assistant with the City of Edmonton's mosquito control program, where Mike still works today.

Mike's involvement with Wagner has continued over the years, and the site remains important both to him and his family. Most recently, in conjunction with coursework for an After-Degree Program in Education, Mike has undertaken the task of creating and maintaining the Wagner Natural Area website.*

As Mike noted, the Jenkins family as a whole are active as volunteer stewards with Wagner. Mike's mother Beth is currently also a director of the Society, and his brother Glenn has been involved from time to time. His father Barry, who succumbed to cancer in 1994, was president of the Wagner Society during the early nineties, at a time when we fought perhaps our biggest battle against road development. —Ed.

Wagner Natural Area Society

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*Visit our website at <http://www.wagner.fanweb.ca>

Executive 2001

President	Irl Miller (455-3866)
Past President	Pat Clayton (456-9046)
Vice-President	Alice Hendry (962-4836)
Treasurer	Dave Ealey (434-0841)
Secretary/Ed/Membership	Patsy Cotterill (481-1525)
Directors:	Leota Cummins (447-4256);
	Beth Jenkins (458-1794); Mike Jenkins (481-8695);
	Derek Johnson (436-8231); Edgar Jones (436-5327);
	Ben Rostron (434-3839)

Soil Surveys of Wagner Natural Area

by J. Derek Johnson

A biophysical survey, coordinated by Alberta Environment, was carried out in the Wagner Natural Area during the summer of 1999. One objective was to complete a detailed soil survey and produce a soils map and legend at 1:5,000 scale for the Natural Area. Field work was conducted during July, from which data for 18 detailed and 73 reconnaissance plots were collected. At each site, a soil profile was described in detail. In areas where mineral soils were found, soil pits were dug with a shovel to 60 cm and hand-augered to the C-horizon. In organic areas, soils were hand augered to either mineral contact or to 2.2 m (whichever came first). Standard soil description forms were filled out for each plot. Samples were collected from 6 of the 18 detailed plots for more extensive analysis. The original field forms reside with the Resource Data Division of Alberta Environment. The results of the soil survey are summarized in the biophysical report prepared for the area by Geowest Environmental Consultants Ltd. and Soil-Info Ltd. (Vujnovic et al. 2000).

Soil mapping of the natural area resulted in the identification of 17 soil units. The dominant soils of the area are poorly drained (organic or peaty mineral) and enriched by secondary carbonates. These carbonates are deposited by lateral flow of carbonate-enriched groundwater through the area. Moderately well drained areas are confined to the hay fields and the old cabin area. The hay fields have Dark Gray Luvisols and Orthic Dark Gray Chernozems developed on medium-textured glaciofluvial deposits. Some soils in the upland areas are also enriched with secondary carbonates due to groundwater discharge.

The majority of poorly and very poorly drained soils are Organic with few Gleysols present. Marl and soil deposited by animals is present in many of the soils found in the area. These soils were classified as carbonated Rego and Orthic Humic Gleysols. This classification resulted in the creation of a new soil series, the "Wagner" soils. This soil unit consists of dominantly (> 70%) very poorly drained, carbonated Rego Gleysols developed on marl deposits. Minor amounts (< 15%) of open water and of carbonated Terric Mesisols (organic soils) occur at random in the unit. The water table is found at the soil surface. The Wagner soils are characterized by having a thick (> 100 cm) marl horizon overlying mixed layers of slightly decomposed and undifferentiated fen peat.

Mineral soils in the agricultural fields occupy the

dry end of the soil moisture gradient and are also the least mineral rich of all soils found in the area. Higher water tables and lower mineral concentrations in the top 30 cm of the soil distinguish the soils supporting black spruce - tamarack communities from those found in other community types. Soils found in association with the poplar-dominated community types in Wagner are in the middle range of moisture and nutrient regimes. The organic soils in the fen communities occupy the wettest end of the moisture gradient and are also the most mineral rich.

Vujnovic, K., Nikiforuk, L., Bentz, J., and Beaudette, P. 2000. Soil and Vegetation Inventory of Wagner Natural Area, Alberta. Alberta Environment, Resource Data Division, Edmonton, Alberta. 67 pp. + appendices.

Chernozem - a soil having a surface horizon (at least 10 cm thick) darkened by the accumulation of organic matter from the decomposition of grasses and forbs representative of grassland or grassland-forest communities. Chernozemic soils are well to imperfectly drained.

Gleysol - a soil having features indicative of periodic or prolonged saturation with water and reducing conditions. Gleysolic soils are frequently associated with a high groundwater table. The thickness of the organic layer is less than 40 cm (cf. Organic soils).

Luvisol - a soil with a light-colored surface horizon from which silicate clay has been leached. Luvisolic soils typically occur in well to imperfectly drained sites under forest vegetation in subhumid, cool climates.

Organic - a soil composed largely of plant remains. Organic soils are poorly or very poorly drained. The organic layer is more than 40 cm thick (cf. Gleysolic soils) and it is commonly saturated with water. The organic material consists mainly of mosses, sedges and other water-loving vegetation.

Regosol - a weakly developed soil, lacking the development of recognizable horizons. Regosolic soils are generally well to imperfectly drained and occur under a wide range of vegetation and climates.



The Wagner Grapevine

(continued from page 2)



May Count

Seven people attended the May Count of Plant Species in flower in Wagner Natural Area on May 27 this year. **Patsy Cotterill** and **Alice Hendry** coordinated the count and reported 61 species in flower, including four species observed in flower from Alice's property at Osborne Acres only. This compares favourably with a total of 47 species recorded last year on the count. However, relatively few individuals per species appeared to be in bloom, and our overall impression was that spring was still somewhat retarded this year. Of course, the winter and spring-long drought likely had something to do with the lack of abundance of flowers and general unthriftiness of the vegetation. (In particular we noted the fact that Labrador Tea seems to have taken a beating this winter—not just in Wagner, but everywhere. The leaves of this evergreen were red and dead and it remains to be seen how quickly new growth can restore it to its original biomass.) One small triumph was finding Hudson's bulrush (*Scirpus hudsonianus*) in flower—by dint of flagging a population of it last season. This diminutive member of the sedge family appears fairly commonly in Wagner fens in mid-June, conspicuous by its white wispy seed-head looking like an old man's beard, but can be almost impossible to pick out when in flower at the end of May!

Field Trips

A number of school and other group field trips took place in Wagner during May and June. Our guided **Orchid Field Trips** on the morning and afternoon of June 17 were oversubscribed, such that with the usual casual visitors we estimate that at least 200 people visited Wagner during that weekend! This is a testament to Wagner's reputation and the fame the orchid walk has achieved over the years, but nevertheless poses some problems for the sustainability of the site and for providing a meaningful interpretive experience. **Wayne Roberts** continued his annual amphibian monitoring with weekly evening visits to the marl ponds in late April and early May.

No Moth Student this Year!

Like many another employer in this year when jobs outnumber the labour supply, Wagner Society was unable to find a student to study moths this summer, despite having obtained the necessary funding from

Alberta Ecotrust. We were unsuccessful in applying the funding to an alternative project, that of a vegetation analysis of the new quarter-section, and so lost the grant.

Bouquets Department

As the editor prepares to mail out (very late!) the first newsletter of the new millennium, it is nevertheless timely to thank all our faithful subscribers (members) and donors—often one and the same—for their unflagging support and generous donations to the Society over the years. Our membership has, however, suffered some attrition in recent years. If you know of anyone who might be interested in joining us, whether as a regular member or as future executive material, please invite them to contact us. Still, we have seen some new faces this past year: we were pleased to welcome new member **Rayma Peterson** into our fold this year and have had **Jasper Keizer**, **Tom Sherwood** and **Cliff Adams** as guests at various monthly executive meetings.

Wagner Orchid Poster

Last year we commissioned local artist, art teacher and botanist **Rayma Peterson** to paint a composite water-colour picture of all Wagner's orchids in their natural habitats, with the objective of producing posters from it. We have received a generous grant of \$1,000 from the Orchid Society of Alberta and other miscellaneous funding to allow us to go ahead with poster printing. We will be distributing some posters free to local schools and perhaps other organizations, and will sell the rest. We anticipate the posters should be ready by early fall—we will announce on our website when they are available.

From the Visitors' Book...

In August last year **Jens Fiegler**, with the German Army at CFB Shilo, visiting Wagner to "walk and relax from driving" wrote: "Canada is a great place to live, not only for its natural treasures (the great nature) but also for its friendly inhabitants/citizens." We are so glad that Wagner Natural Area was able to contribute to inspiring appreciation for the whole country! (I must say that it is usually in provincial and national parks that I have my most fervent nationalistic emotions! - Ed.)

Wildflowers of Wagner No. 18

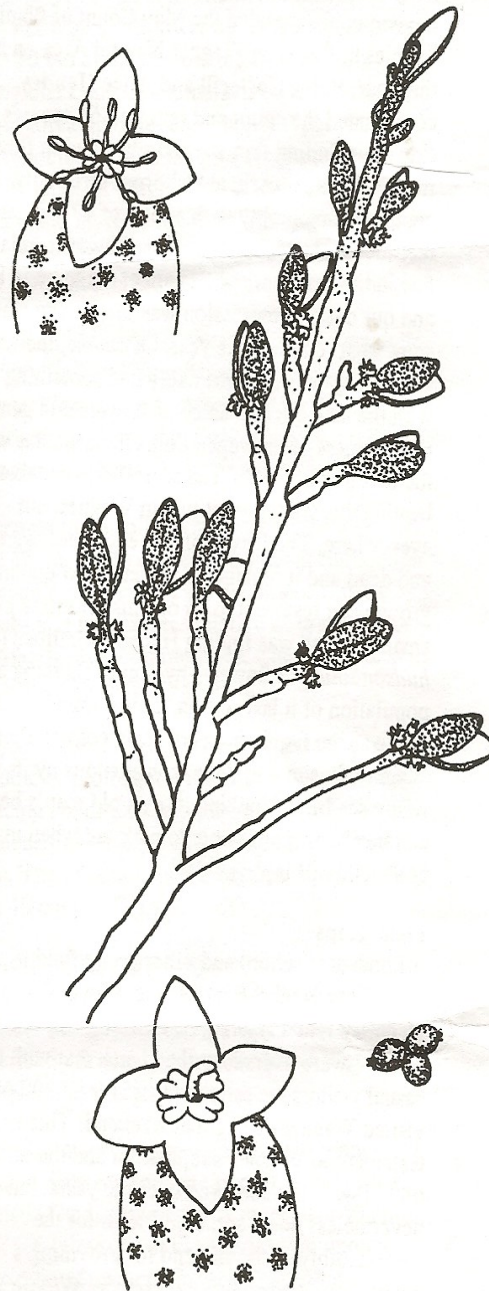
Shepherdia canadensis (L.) Nutt.

Elaeagnaceae

As its name suggests, this branchy shrub of medium height occurs widely across Canada, and is also found in several American states. A denizen of moist to dry forests, it is a prominent understory shrub in the foothills and at lower elevations in the mountains, but in our area, although frequent, it appears as scattered clusters of a few individuals. In Wagner Natural Area it is probably most abundant in the mixedwoods adjacent to the highway just west of the Villeneuve field. Canada buffalo-berry is most likely to be noticed in late April or early May when its still leafless stems bear a mass of small yellow flowers, and again in July or August when the berry-like fruits are ripening and glow translucent red against the deep green leaves. This plant has some interesting features that repay closer examination with a hand lens. Its branches and twigs appear greyish-brown on account of being densely covered with a felt of light brown scales, each with a darker central point. These scales also cover the buds and the undersides of the flowers and leaves. On top the leaves are green, but are dotted with white, star-like clusters of hairs. The paired, oval leaves emerge from the bud in a vertical "praying hands" position.

The flowers are 3-4 mm long and borne in small clusters on short stalks on twigs of the previous year. Each flower consists of a vertical tube (hypanthium), which is split at the top into four deltoid, horizontal lobes. Male and female flowers are borne on separate plants. The male flowers have eight stamens alternating with eight fleshy green pads that form a ring or disk at the opening of the tube. In female flowers, the tube encloses a pistil, with the ovary at the base and the style and its tongue-like stigma protruding from the top between the disk. Female flowers can also have vestigial stamens and, conversely, males can have small, non-functional pistils. The fruits, about 4-6 mm long and also covered in scales, are drupes containing a single seed.

Canada buffalo-berry's close relative, thorny buffalo-berry, *Shepherdia argentea*, occurs in the southern part of Alberta, where it forms dense thickets, especially along river shores. It can co-occur with Canada buffalo-berry but is readily distinguished from it by its spiny branches and by its leaves, which are silvery on both sides.

Canadian Buffalo-berry
Oleaster Family

Drawing by Rayma Peterson