



Wagner Natural Area Newsletter

Volunteers Pitch in to Wagner's Annual Fall Clean-up

Our annual fall clean-up, held on Saturday, September 27th this year, dawned cool and cloudy, but this did not deter our volunteers, who began arriving at the entrance to Wagner Natural Area shortly after 9 a.m. Allan Phillips, organizer of the Knights of Columbus crew who play a large role in this fall event, gave a safety talk to his volunteers and then sent them on their way to pick up litter along the highways. Four old K of C hands stayed behind to man the barbecue and regale the troops with hamburgers and hot dogs when they returned from their forays.

Wagner Society supplied tea and desserts, and freshly picked-up donated Tim Horton's coffee. Wagner volunteers picked up litter, removed the old number posts from the Marl Pond Trail (and stacked them temporarily by Irl's Palace), cleaned the facilities, kept track of arrivals and supervised refreshments. Special jobs this year included repair of a broken railing at Irl's Palace and replacement of the burned brochure box near post # 22 (done by Dick Clayton).

Dave Ealey, with Gerry Haekel of the 166th Bluequill scout troop consisting of seven scouts and three leaders retrieved old fencing wire and tires left in the south fields. A big round of thanks to all who took part!



Volunteers for Knights of Columbus get safety briefing and working orders. Photo: D. Fielder

Inside this issue:

Editorial – <i>Quo Vadis?</i>	2
May Bird Count	3
Junior Forest Wardens' Tree Seedling Report; D. Fielder's Report	4, 5, 8
Restoration 101	6
Restoration (contin.); Wagner Board	7
Wildflower No. 40 – Hook-leaf Fern Moss; Seedling Report	8

Wagner Natural Area Society
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Volunteer Steward Fall Conference at Cold Lake, Alberta

Beautiful fall weather was the icing on the cake at Alberta Parks' annual Volunteer Steward Conference held this year in Cold Lake, September 19th to 21st. The weekend kicked off with supper and a lively, interactive interpretive program in the Group Campground in Cold Lake Provincial Park on the Friday evening. Field trips on Saturday included a tour of the Cold Lake Fish Hatchery whose manager, Craig Copeland, is also the mayor of Cold Lake. In consequence we were treated to fascinating political insights as well as technical ones. The hatchery tour alternated with a visit to the Cold Lake Air Force Museum – something for everyone here but especially for aviation buffs. Another bonus was that our local bus driv-

ers were anxious to share their knowledge and pride in the booming Cold Lake area. The Saturday banquet and awards ceremony took place at Kinosoo Ridge Lodge, metres away from the border with Saskatchewan. Speakers on Sunday morning at Lakeland Inn did a great job; unhappily there wasn't time enough to attend all the sessions. Congratulations to Steward Program staff and staff of the Northeast Region for a well-organized and exciting weekend that left us a lot better informed about this northeast corner of our province! Wagner Society was represented at the conference by Pat and Dick Clayton and Patsy Cotterill.



Editorial: Quo Vadis, Wagner Natural Area?

This being the last issue of the newsletter under my editorship I thought I'd indulge in a little speculation on the future of Wagner Natural Area. You'll recall that Wagner was established by the Alberta government as a Natural Area in 1975 to protect its singular peatlands, its open fen drainages and forests, and their associated flora and fauna. This ecological gem was to be accessible to the public for research, education and nature appreciation. Originally consisting of a half section of land (320 acres), it has been expanded by land acquisition to its present 620 acres, including 80 acres of land belonging to the Nature Conservancy of Canada (NCC).

Provincial Natural Areas fall under the jurisdiction of the *Wilderness Areas, Ecological Reserves, Natural Areas and Heritage Rangelands Act* and are the least well protected areas by legislation and regulation. Two not very adroit attempts by the government to revise and simplify the various acts relating to parks and protected areas have failed in the last decade, leaving Natural Areas in a sort of legislative and management limbo. However, several steward groups (belonging to the provincial stewardship program), Wagner Natural Area Society included, have obtained recreational leases to their sites, giving them more clout to dictate what uses occur in their Natural Areas.

The government is clearly looking to maintain its existing system of parks and even expand its protected-area system under the "conservation areas" of the new Land Use Framework regional plans. Nevertheless, it is also clear that private conservancies, such as the NCC, and land trusts, such as the Edmonton and Area Land Trust, have begun to take on a much larger role in conservation. Municipalities are also playing an increased role in the preservation and management of the smaller natural areas, especially where they see their benefits to their residents and tourists. Parkland County (see its Environmental Conservation Master Plan online), perhaps encouraged by Wagner Society's early and ongoing efforts to establish a relationship with them, takes a lively interest in Wagner's welfare.

Given this municipal investment, and the fact that Wagner continues to be one of Alberta Parks' flagship Natural Areas – even if the flag is fading a bit these days – it is unlikely that the land base of Wagner will become unavailable to the public anytime soon. (It might be upgraded to a Provincial Park in the future, but even then radical changes are unlikely, in my opinion.) But what of Wagner's *ecological* integrity into the future?

It is no secret that Wagner's fens and marl ponds depend upon the highly calcareous water issuing from springs in the east, and the springs in turn are fed by groundwater, which is recharged over time from precipitation falling on an area several kilometers to the south of Wagner. Despite extensive hydrogeological studies done in the area by the University of Alberta

and NAIT, this recharge area has not been precisely defined. It is vulnerable to development, which could both reduce infiltration and increase withdrawal of groundwater for industrial purposes. Add to this the vagaries of climate warming, and there is a real possibility that the fens could dry up and change, becoming first marshes and then eventually forest. Of course, over geological time, all landscapes change. When we say we want to preserve in perpetuity, we wisely do not define perpetuity.

Nevertheless it appears there are some exciting possibilities in the relatively near future for further expanding the land base and for creating ecological connectivity, thereby augmenting both Wagner's ecological viability *and* recreational opportunities. The County's Conservation Plan (see page 16) shows a strip of additional forested land to the east (south of Highway 44) and what we call the "Spruce Grove Fens" to the southwest, as well as a corridor linking the latter to Wagner in the northwest, and two potential corridors linking Wagner to the north. These areas, if protected, would allow for further walking trails and interpretive infrastructure.

We like to think that the Wagner Society has played a role in the protection of Wagner Natural Area, or at least in its accessibility to the public, over the last 30 years. However, while we have a number of supporters who are willing to help out with management tasks and we are grateful to them, we have not been as successful as we need to be in recruiting new blood to our administrative board. We must do more in terms of outreach and mentoring. While Wagner could continue, ecologically speaking, without a management group, the quality of its visitor experience would surely suffer from lack of a steward. Also, given the new potential for expansion mentioned above, a strong, numerous, active board would be in a position to capitalize on these opportunities.

I've decided to conclude my editorship of the twice-yearly newsletter because it's a fair amount of work and given its small readership it seems more efficient to concentrate our efforts on getting the same (or more) information onto our website. Such information can be more timely and flexible. I hope, therefore, that our supporters will get into the habit of checking and even contributing to the website regularly, just as we as a society need to get into the habit of posting regularly. And of course we hope that our supporters will retain their memberships and continue to make donations (as many do) – management does cost money! We would love to recruit more volunteers so if you have any aspirations in this regard please contact us via Society: Friends of the Fen on the website (or email: info@wagnerfen.ca). Above all, please continue to visit Wagner in all its seasons and appreciate its complex and beautiful nature! So, it's not goodbye, it's just *arrivederci!*

By Patsy Cotterill





May Species Count for Birds at Wagner Natural Area, May 31, 2014

by Dave Ealey

Nature Alberta's website contains the following description for May Species Counts: *Count birds and blooming plants in a specific area for yearly comparisons. Contact your local nature group to find out when, where and how to participate and to have your results included in the final documentation.*

There's no defined count circle as in Christmas Bird Counts, it doesn't follow a rigorous process as in Breeding Bird Surveys, but there is something enduring about the May Species Count. I think it makes for a well-justified excuse to have an event to throw off the winter shackles and celebrate the arrival of spring!

At many locations throughout Alberta during the last couple of weekends in May, the usual dates for this count, birds are still migrating to their breeding locations, and some are already on territory. The opportunity exists to document good numbers and diversity of birds.

[As an aside, it seems to me a pitiful time for blossoming plants; so few have reached that stage in their seasonal cycle. I'm sure the botanists will have something good to say about these early counts for their quarry, but from my perspective, the only good thing about that time of year is the general foliage is still so sparse that there's little hiding the few plants that are in bloom!]

In late May, the birds are at their most glorious – all are in full breeding plumage, colours galore. And you can spot them more easily as the leaves are less advanced on many trees and shrubs. Of course, in the coniferous wooded areas at Wagner Natural Area it can be difficult to spot some of the birds, so the fact that many are already singing their territorial songs provides an additional means of detection.

This year, participation at Wagner in the May Species Count for birds reached a new record with six keen birders – most years it has been a solo endeavour. Let me acknowledge my five supporters: Gerry Haekel and his wife and son (Gerry represents the 166th Bluequill Scout troop and is collaborating with Wagner Natural Area Society to enable his scouts to complete conservation and natural history-related badges), and Kathy Holz, who learned of the count day from the website, and her 10-year old nephew, Evan. It was a delight to introduce the birds of Wagner to these visitors and the overall results benefitted from their observations. Young Evan in particular made several first sightings of the day and showed the enthusiasm and skill of a seasoned birder; I expect to see him contributing to the Edmonton birding community in the near future.

We observed a total of 24 species during the count which included two trips through the Marl Pond Trail (one at 8:00 a.m. to 9:30 a.m. and a second from noon to 1:00 p.m.), as well as stops at the Atim field to document the tree swallow contingent, and a quick trip to Villeneuve field for swallows and the grass-land bird species. The numbers of birds listed are adjusted to ensure no double counting of birds happened when the trail was visited the second time. Over the coming year, I hope to look at our past May count results at Wagner and see what changes have occurred over the past couple of decades.



Left: Tennessee Warbler; below, Olive-sided Flycatcher. These photos were taken at a bird-banding site on the North Saskatchewan River, in June 2014. *Courtesy of Dave Ealey*



Species List

Mallard	5	Black-capped Chickadee	5
Green-winged Teal	1	House Wren	1
Northern Shoveler	1	American Robin	5
Sora	1	Yellow Warbler	8
Pileated Woodpecker	1	Tennessee Warbler	8
Northern Flicker	1	Yellow-rumped Warbler	1
Olive-sided Flycatcher	1	Chipping Sparrow	8
Alder Flycatcher	1	Lincoln Sparrow	2
Red-eyed Vireo	4	Clay-colored Sparrow	1
American Crow	1	White-throated Sparrow	4
Blue Jay	1	Red-winged Blackbird	1
Tree Swallow	25	Brown-headed Cowbird	1





Junior Forest Wardens' Tree Seedlings Report, 2014 by J. Derek Johnson

I went out to Wagner with Dave Ealey on June 3rd to do the biennial measurement of tree seedlings planted by the Junior Forest Wardens (JFW). It was about a month later than I would have liked as the seedlings were breaking bud and this made measurement a bit more challenging, but that was the earliest my chauffeur was free on a week day. It was about 2 p.m. when we got started measuring the seedlings after sawing logs on the Marl Pond Trail for a while. I don't find it particularly amusing that the farmer tries to maximize his hay cut. He knocked down at least three quarters of the stakes we had put up to mark the "no mow" zone in the Villeneuve Field. Dave and I didn't have a lot of fun trying to pound the stakes back into the ground when they didn't have a pointed end and with only a hammer to do the job. Fortunately, the stakes had been moved out after the last of the JFW seedlings had been planted so none of them were damaged. We had set a deadline of 6 p.m. for leaving the site so things got a bit rushed towards the end of the day. Having only one pair of good eyes (Dave's) looking for seedlings didn't help matters either.

Of the 140 seedlings tagged in the Villeneuve Field, 30 were unaccounted for by the end of the day. This was totally unacceptable for compiling any summary information so I went back on July 28th and August 4th to try and locate the missing seedlings. I had to spread it over two days because I literally melted into a puddle of sweat in the +28-degree temperatures on July 28th and couldn't finish the circuit. This was actually the worst time of year to look for seedlings as many of them are hidden by the tall, lush and very green grass. (Early spring after the winter snow has flattened the grass and before it gets growing again is the best time to measure the seedlings.) Much to my surprise, I managed to find 18 of the 30 missing seedlings, about one for every 20 minutes expended (just stubborn, I guess!). It wasn't all time looking for missing seedlings; I was replacing faded flagging tape on the pins as I went.

It's the usual "good news, bad news" scenario regarding the seedlings this year; however, the "good news" is really good and the "bad news" is really bad. The measurements this year continue to prove that the three most important things to remember when starting a tree plantation are location, location and location. However, it is also evident that poor planting technique can undo many of the advantages of said location.

Bad news first: since the last measurement in 2012 we found 26 dead seedlings among the tagged seedlings from all plantings in all locations in the years 2005, 2006 and 2008. This was 11 more than the 15 seedlings that didn't survive their first winter (2005/06). Granted, most of the dead seedlings were sick and/or runty to start with, but there were two that up until this year were off to a good start, one at 91 cm and another at 123 cm. Ironically, the 123 cm tall seedling was the tallest of any of the tagged seedlings from the 2005 planting at the time of its demise. Half of the dead seedlings were in the southwest corner of the Villeneuve Field. Looking around, Dave and I figured out why mortality in this area might be so high. There is a lot of common horsetail (*Equisetum arvense*) and several large clumps of bluejoint (*Calamagrostis canadensis*) in the understory, indicative of moist conditions. There is also no coniferous regeneration (even tamarack), other than the planted white spruce seedlings, in this area, only balsam poplar and willow. After two winters with heavy snowfall and a very wet summer in 2012 the water table was very high, especially in this area, and the root system of the seedlings simply couldn't handle the excess water and they drowned. When

your feet squish in Villeneuve Field you know you have a problem!

The seedlings from the 2005 planting at the south end of the Villeneuve Field are in general not doing terribly well. Survival of these (100) seedlings is 63% if you consider the 9 seedlings missing from the south end to be alive, 54% if you don't. Still, it's better than Mother Nature would have done on her own. None of the seedlings planted west of the Cabin Trail head could manage leader growth over 15 cm in 2013. The ones east of the Cabin Trail head (drier) are doing a bit better, with 6 seedlings having leaders over 20 cm in 2013, the best being 24 cm. Excluding the abnormality mentioned below, average height growth of all seedlings was 6 cm, rather disappointing considering that most of these seedlings were "professionally" planted, and hardly better than the 4 cm managed by the "parachute" plantings from 2008. 12 of the 14 tagged seedlings from the 2008 planting on the southwest side of the Villeneuve Field survive, but that's not as wonderful as it looks since most of these are retags in 2009 after an 80% mortality in the first year of the seedlings initially tagged in 2008. These seedlings are still struggling to develop a decent root system. I didn't tag any seedlings from the 2009 planting. Just as well since most of these ended up under 20 feet of dirt with the widening of Secondary Road 531A (Highway 44) west of Jasper's gate.

There is one glaring abnormality in all this doom and gloom in the Villeneuve Field. I took a quick look at the measurements we made when I got home and there was one seedling near the head of the Cabin Trail that immediately jumped off the paper. Apparently, it produced a leader 47 cm long in 2013. I thought this was ridiculous for a seedling that size and that either I had made a measurement error or Dave had made a recording error. Either way, it required reinvestigation. I went back in July to re-measure it when I was looking for missing seedlings. Sure enough, the 47 cm leader was correct. Not only is this exceptional for a seedling less than a metre tall, but it represents 40% of the total height growth for that seedling in just one year. Talk about a slow starter!

Now for the good news, the seedlings from the 2005 planting in the Succession Field and the seedlings from the 2006 planting on the east and west sides of the Villeneuve Field are doing quite well. Survival of the tagged seedlings in the Succession Field is 86% (43/50) after 9 years. Average height growth in 2013 was 17 cm with 7 seedlings having leaders 30 cm or better, the best being 37 cm. A casual inspection of these seedlings in September 2014 indicated that most of these seedlings again had another good year with several leaders over 30 cm and at least three seedlings now close to my height (180 cm). The only thing that seems to be inhibiting these seedlings is the goldenrod on the east side of the field, but most of the seedlings have now outgrown it.



Junior Forest Wardens planting trees in Villeneuve Field, 7 May 2005.

Photo: Wagner Society

Continued next page



Junior Forest Wardens' Tree Seedlings Report (continued)

I was told that the seedlings planted in 2006 were one year older than the usual stock that the JFW get to plant. I couldn't tell this just by looking at the seedlings, but judging by how these seedlings have survived and grown, they probably were more established seedlings. Survival of the tagged seedlings is 96% (25/26) after 8 years. Average height growth in 2013 was 21 cm with 7 seedlings having leaders 30 cm or better, the best being 42 cm. "Spikey II" survives in the northwest corner of the Villeneuve Field. The excited 7-year-old girl that planted "him" would be 15 years old now with probably zero interest in how Spikey is doing. The original Spikey was planted right next to the gate in the Villeneuve Field before I could get to the group and tell them where not to plant and I didn't have the heart to tell the little girl that Spikey was in danger of being terminated when the farmer came in to mow the hay in the field, so I waited until the group left and quietly moved the tag from Spikey to Spikey II in a more secure location. (Spikey did indeed lose his head when the farmer came to mow the hay.) Spikey II isn't a big award winner, but it is in the top one third of all the tagged seedlings as far as height growth goes.

Considering all the tagged seedlings, there were 6 above breast height (130 cm) in 2013 (many more now after the 2014 growing season). (Starting height for most seedlings was about 30 cm.) The tallest seedling was 155 cm tall after producing a 37 cm leader in 2013. Not bad to go from seed to 155 cm in just 10 years. 50 m here we come!

There's been enough time since the initial plantings that some generalizations can be made about where the seedlings are growing the best. Obviously, areas with a high water table are not good for white spruce. Neither are open areas completely covered with grass. Seedlings are often smothered by the smooth brome grass. They have to be about 85 cm tall before they emerge above the grass. Seedlings planted in the areas with Kentucky bluegrass have a different problem. They are almost taller than the grass when planted and some of them suffer from sun scald with no protection at all. The brome grass is not 100% bad. If the grass isn't too thick and smothering, it does seem to offer the seedlings a bit of protection (shading) while they get established, something the Kentucky bluegrass doesn't do. The seedlings planted directly under the aspen and balsam poplar are doing "okay" (certainly better than the JFW thought they would) as white spruce is relatively shade-tolerant. The seedlings that seem to be doing the best are the ones that get shading for part of the day (Succession Field, east and west sides of the Villeneuve Field) as long as the grass isn't too thick. The south end of the Villeneuve Field is more shaded than either the east or west sides and the seedlings seem to be growing more slowly.

The planted seedlings are getting to a size where they're becoming useful to fauna bigger than ants. I found one seedling with a tiny, finely-constructed grass nest in a branch only about 30 cm above the ground. The cup was only about 7 cm across. It didn't look like it was active this year (2014) so it's probably from last year (best guess for an inhabitant is some species of sparrow). There was also one planted seedling with a honking big active wasps' nest about 60 cm above the ground (fortunately, not a seedling that had to be measured!).

In our wanderings, Dave and I came across many of the spruce seedlings the Carbon Farmer planted in 2013 (in the Succession

Field and along the east, west and south sides of the Villeneuve Field). Casual observations: quite a few dead ones (no surprise); quite a few planted crooked (again not a surprise, most of these seedlings will grow out of it); quite a few with brown needles (this would have concerned me were it not for the fact that many of the JFW seedlings had brown needles coming out of their first winter and the majority of these seem to have recovered, so I would assume the same for the Carbon Farmer's seedlings). One thing that struck me after the Carbon Farmer planted his seedlings was how "bushy" they were compared to the ones the JFW were planting (sort of like comparing a gopher's tail to a fox's tail). This is probably related to how they were grown initially. However, it seems that the Carbon Farmer's seedlings have lost much of their "bushiness" in their second season.

I will conclude with a discussion on what I have chosen to call the mysterious, inexplicable "ant runs" on some of the planted seedlings at the south end of the Villeneuve Field, and only these seedlings as far as I can tell (believe me, I've looked elsewhere). There were 6 of these "runs" on seedlings from the 2005 JFW planting and I found 3 on the Carbon Farmer's seedlings. If you want to know what these "runs" are like, just think of an extremely small version of some of the termite mounds in Australia built up around a tree. The ants may be attracted to the area of the planted seedlings initially because the disturbed soil is easy to work, but why build a "run" up the side of the seedling? There must be some reason the ants are building a covered channel up the side of a seedling to get to the top. One might guess that the ants are using them to get to the aphids sucking juices from the tender young parts of the seedlings, but I've only ever seen aphids on a planted seedling once, so this is not a great explanation. I don't know if the ants would go after the plant juices on their own, but this seems unlikely considering how common the seedlings are and how rare the runs are. The covered runs do offer some protection from predators. The runs seem to disappear from the seedlings when they reach a height of about 50 cm, perhaps because they're too costly to maintain any higher. The questions that need answering are: "Why do the ants build these runs?" "Why are they only found on planted seedlings at the south end of the Villeneuve Field?" and "Why do they disappear when the seedlings reach a certain height?" My conclusion: it's a weird hybrid ant-termite species found only in the Wagner Natural Area! Food for thought!

For more on this story, see Wagner Seedling Olympics! Page 8

David Fielder, who explores the less-travelled areas of Wagner, reports for 2014 as follows: "The bush was wetter than usual this year, which resulted in a bumper crop of horsetails (*Equisetum* spp.) Most of the orchids bloomed as usual, including a large stand of spotted coral-root (*Corallorhiza maculata*), but the patch of lesser rattlesnake plantain (*Goodyera repens*) failed to bloom again this year, even though the beautifully marked leaves were very evident. Round-leaved bog orchid (*Platanthera orbiculata*) failed to show again, as did northern twayblade (*Listera borealis*) – three years since it was first found at Wagner. The toad walk in August, with a turn-out of about a dozen people led by Ian Kanda, President of the Edmonton Reptile and Amphibian Society, turned up lots of large boreal toads of both sexes, and several wood frogs."



Restoration 101—Musings on Eco-islands *By Patsy Cotterill*

[Recap: Both eco-islands are approximately 50 m² in size and located in Osborne Field in southeast Wagner. No. 1 is in a low-lying area close to the belt of trees that serves as a barrier between the field and Spruce Valley Road. No. 2, to the south, is in a more upland location about 50 metres from the tree belt. Both were planted last year, no. 1 with native shrubs, and no. 2 with aspens and a lesser number of native shrubs plus some locally grown native herbaceous perennials. Cathy Mowat designed and caretakes no. 1, Patsy Cotterill, no. 2.]

It is a truism that you reap what you sow. It is also true that in literal terms you reap what you don't sow. In eco-island no. 2 all those opportunistic little annual weeds capitalized on the opening of the soil following cultivation last year to grow and prosper. Field bindweed, canola, ball mustard, stinkweed, weeds that we hadn't seen in years since timothy and common dandelion established dominance in the field, along with the familiar perennial weeds of last year, creeping thistle, perennial thistle and the ubiquitous dandelion, all popped up from the seed bank in overwhelming numbers. Consequently, hoeing, hand pulling and a bit of selective herbiciding became the pattern for the season. Eco-island no. 2 required as much babying as a regular vegetable garden bed!

I'd placed papier mâché mats around each aspen seedling with the idea of reducing immediate competition for the trees, but in every single case a dandelion sprang up through the opening where the tree stem emerged, spreading its leaves defiantly into perfect rosettes. The only thing to be done was to try to starve them out by pulling off their leaves, because they were too close to the seedling stems to be herbicided or dug out. Smart creatures, dandelions! All this intensive labour had me reconsidering the wisdom of cultivating the ground prior to tree planting last year, which I'd done on the advice that otherwise the timothy would present significant competition to the aspen. In addition, bare ground appealed to me because it meant an opportunity to establish native herbaceous ground cover using my supply of home-grown species. Given, however, that disturbing ground creates a sure and certain legacy of weeding, I think in a future eco-island I'd make two or more applications of herbicide (not just one as in eco-island no. 2), possibly in subsequent years, and then plant without cultivating.

I greeted the arrival of spring with both anticipation and trepidation. How had the plants fared over the winter? Eco-island no. 2 was less well protected by fencing than eco-island no. 1, and browsing by deer was a particular concern, especially in the knowledge that the balsam poplar planted in the Succession Field in 2013 had been promptly eaten out of existence. However, the snow was deep last winter and the deer appeared to confine themselves to a trail along the edge and in and out of the fringe forest. Fortunately, only about four aspen seedlings had died from unknown causes over the winter and had to be replaced by home-grown seedlings. (Aspen seed collected from the trees growing along the roadside belt germinates readily when spread on soil in a large tub.) There was some, possibly spring, browsing of the dogwood shrubs, but all shrubs weathered the winter well.

Indeed, throughout the season in eco-island no. 2 the shrubs flourished while the aspens struggled. There are two ant mounds close to the island and the tops of several of the taller seedlings became infested with ants tending aphids bent on demolishing the tender, new, as yet unhardened leaves. I tried Safer's insecticidal soap on them but I think its effects are too temporary for field application. I'm sure the ants and aphids were back at it the minute I turned my back. For next year I harbor murderous intent towards the ants! I noticed that the tops of the aspen suckers in the field were similarly afflicted, but then of course

they are tied to their parents' apron strings and have more resources. There was also a localized infestation of black caterpillars, which ate the leaf blades, leaving the leaf stalks sticking out like horizontal tent pegs.

The two eco-islands, set up differently, present an interesting comparison. Eco-island no. 1 was planted exclusively with native shrubs, but in-growth and continued growth of aspen suckers from the field edge now gives it the appearance of a mini forest. In contrast, eco-island no. 2, which includes some tall herbs such as late goldenrod and clumps of grass, the aspens hidden among them, and patches of bare or weedy ground, looks more like an ill-tended garden. A few of the suckers in eco-island no. 1 are over 2 metres high, whereas the tallest aspen in no. 2 is 1.2 m high, and only three or four reach top-of-thigh height, the majority being about calf height. (There are currently 45 aspen seedlings in no. 2.) Interestingly, the suckers seem to concentrate all their resources into erect, unbranched growth, whereas the aspen seedlings tend to branch like the miniature trees they are, contributing to their reduced vertical height.

The shrubs in no. 1 are, however, doing less well than those in no. 2. I suspect that competition may be a cause, as the ground cover throughout the site in no. 2 is the original timothy and dandelion. Possibly the wetter ground there inhibits root development, although it seems counter-intuitive, for example, that gooseberry shrubs should not do particularly well in a moist site.



Eco-island no. 1 showing growth of aspen suckers. Red-tagged plants are shrubs. *Photo: P. Cotterill, 5 October 2014*

Given the robust suckering of aspen in eco-island no. 1, it seems clear that the easiest way to re-forest with poplar is to allow vegetative suckering, if possible, rather than plant trees. The problem then is, if this is reforestation of a formerly cultivated field, how does one achieve a native understory such that the forest eventually becomes a diverse, fully functional ecosystem resembling its natural equivalent? The current ecological theory is that once the trees and shrubs are big enough to establish a canopy they will shade out the weeds. Will the timothy and dandelion of no. 1 get shaded out in a matter of five to 10 years? I don't know. But I do know from observation that smooth brome grass can persist as an understory to aspen for many years, perhaps indefinitely. Indeed there is now some evidence coming out of the University of Alberta (G.C. Stotz, J.F. Cahill Jr. 2014. Beef and Range Report, August 2014)

Continued on next page



Musings on Eco-islands (continued)

of a symbiotic relationship between brome and aspen. However, timothy is a more or less tufted grass; it is not strongly rhizomatous and patch-forming like smooth brome and may disappear under a canopy. It may be a great advantage to us that we have little smooth brome in Osborne Field, and we should make it a priority to remove what there is and prevent its spread.

Having recently seen the tree plantings done by Dan Stoker and his colleagues in an old field in Riverlot 56 Natural Area, and from personal observation over the last couple of years, I have come up with a new recipe for the reforestation of Osborne Field, should the Wagner Society ever commit to this. Instead of planting circular or oval eco-islands I would plant a linear eco-island on a crest somewhere near the centre of the field. Suckers from the planted aspen, four or five trees deep, would spread out east and west, if mowing is restricted around the island. The ground would be herbicided two or three times in successive years before planting and the resulting stubble covered with clean straw as mulch to reduce weed growth. Trees would be planted in such a way that weeds could be mown with a hand lawn-mower if the mulch proved insufficient deterrent. Once the tree seedlings had established good growth, hardy shrubs such as snowberry (*Symphoricarpos* spp.), rose and dogwood could be planted, along with the occasional Canada buffalo-berry for diversity, reflecting similar composition in Wagner's more natural poplar stands. It would be fun to try such an experiment, and if we could get some students involved, it could be an excellent educational exercise.



Eco-island No. 2. Photo: P. Cotterill, 5 October 2014



Lovely Jones' Pond, a very large marl pond, always has water in it. Photo: P. Cotterill, 27 May 2014 (See Editorial on page 2)



Former open marl pond along the Marl Pond Trail infilling with sedges and bulrushes after the drought years of the early 2000s. Photo: David Fielder, 2014



Bouquet: Special thanks to Pat and Dick Clayton for monitoring the Marl Pond Trail and maintaining facilities over the summer months.

Wagner Natural Area Society 2014

President: Irl Miller Vice-President: Ben Rostron Past President: Pat Clayton

Treasurer: Dave Ealey Secretary: Beth Jenkins

Directors (besides executive): David Fielder Alice Hendry Jasper Keizer

Other duties: Pat Clayton (Archivist), Patsy Cotterill (Newsletter Editor),

Carole Dodd (Webmaster), Jasper Keizer (Fire Marshall), Derek Johnson (Science Advisor)

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Wildflowers of Wagner No. 40

***Thuidium recognitum* (Hedw.) Lindb.**
Family Thuidiaceae

Habit: Green to yellowish-green, prostrate to ascending, loose, dull mats; stems 4-9(11) cm long, spreading, **2-3 times branched**; stems with abundant, branched, thread-like scales (paraphyllia) with **nipple-like bumps (papillae) mostly restricted to cell ends**.

Leaves: Stem leaves about 1(1.5) mm long, broadly egg-shaped, erect to spreading, abruptly pointed, **distinctly pleated**, toothed (especially toward tip), **midrib extends nearly to tip**; branch leaves shorter, with shorter midrib.

Sporophytes: Single, stalk 2-4 cm long, brown to reddish-brown, smooth; capsule 2-3.5 mm long, brown, cylindrical, curved, inclined to horizontal.

Habitat: On moist soil or humus, infrequently on logs or bark at base of trees, in shaded woods; a widespread circumboreal species preferring calcareous (calcium-rich) sites.

This species is common in moist (white) spruce woods in the Wagner Natural Area (WNA). Hook-leaf fern moss could be confused with wiry fern moss (*Abietinella (Thuidium) abietinum*), but that species is more yellowish in color, larger, more robust and only once-branched. It prefers drier habitats than hook-leaf fern moss, such as dry conifer woods and rock outcrops. It has not been found in the WNA. Hook-leaf fern moss is sometimes identified as a small form of stair-step moss (*Hylocomium splendens*), but that species is glossy, brownish-green rather than yellowish-green in color, and has conspicuously red stems. The stems of stair-step moss also have abundant paraphyllia, but they do not have any papillae on them.

Hook-leaf Fern Moss

The genus *Thuidium* was named because of the resemblance of its feathery, fern-like branching pattern to species of *Thuja* (cedar). The common name “fern moss” is in reference to the fern-like appearance of these mosses. In Europe, the genus is often referred to as tamarisk moss in reference to its much-branched growth form.



Photos: Top: moss showing growth habit. P. Cotterill
Bottom: close-up of frond. Wikipedia photo



Photo 1, above, by Derek Johnson, 2005; Photo 2, right, by Cathy Mowat, October 2014



Wagner Seedling Olympics!

(continued from page 5)

Olympic Summer Games 2116
Competitor No.: 738
Ethnicity: white spruce
Home Town: Succession Field, Wagner Natural Area
Event: Track and Field - 100 m Dash
Starting Block: 0.37 m (2005, still wearing diapers - Photo 1)
Breast height: 1.3 m (2012, where the fingers are in Photo 2)
Current height: 1.9 m (2014, now taller than the idiot standing beside it)
Pace: 0.153 m/year (10 growing seasons)
Only 98.1 m to go before the gold medal is awarded!

Slow and steady wins the race, doesn't it?

A leading spruce seedling (pun intended!) with proud father-figure Derek. See his report on page 5. Stats by Derek Johnson.