SAPAA Newsletter No. 54, May 2025

In this edition, a feature article by Chris Saunders on biocontrol for Canada thistle. Improved website functionality with iNaturalist links and training for site inspections are discussed.

Long-leaved bluets (Houstonia longifolia) on sandy soil in Opal Natural Area; M. Parseyan

Editorial – Getting Back in the Field and a Busy SAPAA

by Patsy Cotterill

Spring is under way at last and for fair-weather explorers now is the greatest time to visit Alberta's Protected Areas and submit some of SAPAA's Site Inspection Forms we've been honing for the last year or so.

Meanwhile, board members have embarked on various initiatives. ***David*** has been working on a safety manual and waiver form ready for field trips, as well as an online system of cataloguing our hundreds of photos for easy retrieval. ***Myrna*** has been investigating our insurance coverage, and ***Frank*** and ***Tony*** have been beavering away at inserting iNaturalist capability into our Natural Area pages. ***Hubert*** and ***Patsy*** are checking to ensure that these pages on the website are up-to-date. This issue will provide more information on these projects.

As well, we feature an article by guest columnist ***Chris Saunders*** which will be of interest to stewards undertaking land management and indeed anyone who's scientifically inclined.

Chris describes research on the biological control of Canada thistle, the ubiquitous and invasive introduced weed that is the bane of stewards and others attempting to maintain natural ecosystems. Chris's local work in biocontrol could inspire some interesting citizen science projects. His article also provides an amazing insight into the complex interrelationships that exist among living organisms.

As always, we invite photos, comments and contributions from our members/ readers.

Feature Article: Fungal Pathogens and Biological Control

Canada thistle is one of the most problematic weeds of crops, pastures, range lands, natural areas and riparian habitats throughout North America. Canada thistle rust fungus, also known as thistle rust, is a fungal pathogen that only infects Canada thistle (CT).

Both the thistle and the thistle rust were introduced to North America as settlers began arriving from Europe more than 400 years ago. Today, both species have naturalized throughout most of the USA and all Canadian provinces.

Can a fungus help to control this problem plant species? Chris Saunders provides an excellent article on the state of such efforts. Read the full article or download it.

Local Land Managers/Stewards: Applying Lessons Learned

Chris has provided the following further information which will be of interest to local land managers/stewards planning biocontrol Canada thistle on their lands.

He recommends the following steps:

- (1) pick a disease-free Canada thistle infestation.
    - It is important to apply the inoculum spray you have concocted or obtained to the rosettes, this being the shortest route to the rhizome and the fungal spores being less likely to encounter bacterial antagonism on the way.
    - Mid-September is considered the best time to spray, so Chris recommends
- (2) mowing the thistle patch four to six weeks before spraying, so that thistle rosettes will have had time to form, or better still, stimulating rosette formation by hand pulling the shoots so you can get an estimate of stem density prior to inoculation.

- (3) Spraying is best done an hour before sunset when the thistle's vulnerability to microorganisms is greatest with a fall in temperature from an early evening temperature of ca. 18 C, and humidity is increasing overnight.

Volunteers can readily detect an infection by the presence of the yellow teliospores on the undersides of the leaves. However, lack of this sign of disease on the leaves may not mean that the roots are not infected, which is more difficult to detect, but should manifest in a reduced number of stems. However, data on root infection from the Edmonton area is currently lacking.

Chris is currently monitoring the results of last fall's inoculations of thistle in Bunchberry Meadows Conservation Area. He is also keen to investigate the organisms implicated in the white tip disease of thistle prevalent in this area, namely the bacterium *Pseudomonas poae* and the soil fungus *Phoma macrostoma*.

Chris Saunders – Biography

Christopher Saunders graduated from the University of Alberta with a BSc. (Hon.) in Zoology, specializing in Entomology. He has had a 37-year career with the City of Edmonton's Pest Management Department, including developing Integrated Pest Management programs (IPM), co-authoring the City's first IPM policy and serving as Environmental Manager for Parks.

Now retired, Chris continues to work on biological pest control as a self-employed consultant and as a volunteer. He is currently conducting inoculation trials of thistle rust on Canada thistle in the Edmonton area. A member of the boards of both Wagner Natural Area Society and the Clifford E. Lee Nature Sanctuary, he applies his expertise to weed management in these two nature reserves.

(White) Sprucing Up Citizen Science

Details are being worked out over the next week, but stay tuned for a SAPAA sponsored Citizen Science project – *where the heck are the white spruce trees*? This post explains the project and will include links to any webinars and field trips.

As board member Patsy would say, '*Aren't white spruce as common as dirt?*'. They are and that is the problem. Where to find a research grade tree-stand? The solution: go for a walk in the forest, takes some pictures, upload them to iNaturalist – and voila! Find the stands!

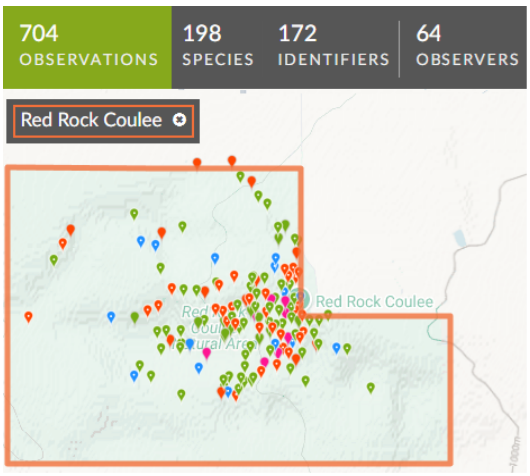
SAPAA 2.0: A Six Month Report Card

Frank, SAPAA President, reflects on the work of the board in implementing SAPAA 2.0. This includes the challenges of Time, Talent, and Treasure expected to create a Safety Program for Volunteers. Challenges notwithstanding, there is hope as interest in natural areas remain high.

Read More: Six Months of 2.0: A Report Card.

Website Update: iNaturalist Links

If you have visited a SAPAA web page lately, you might have noticed a new feature, a link to iNaturalist. At press time, these links are available in about half of the Protected Areas; the balance will be updated over the next few months.

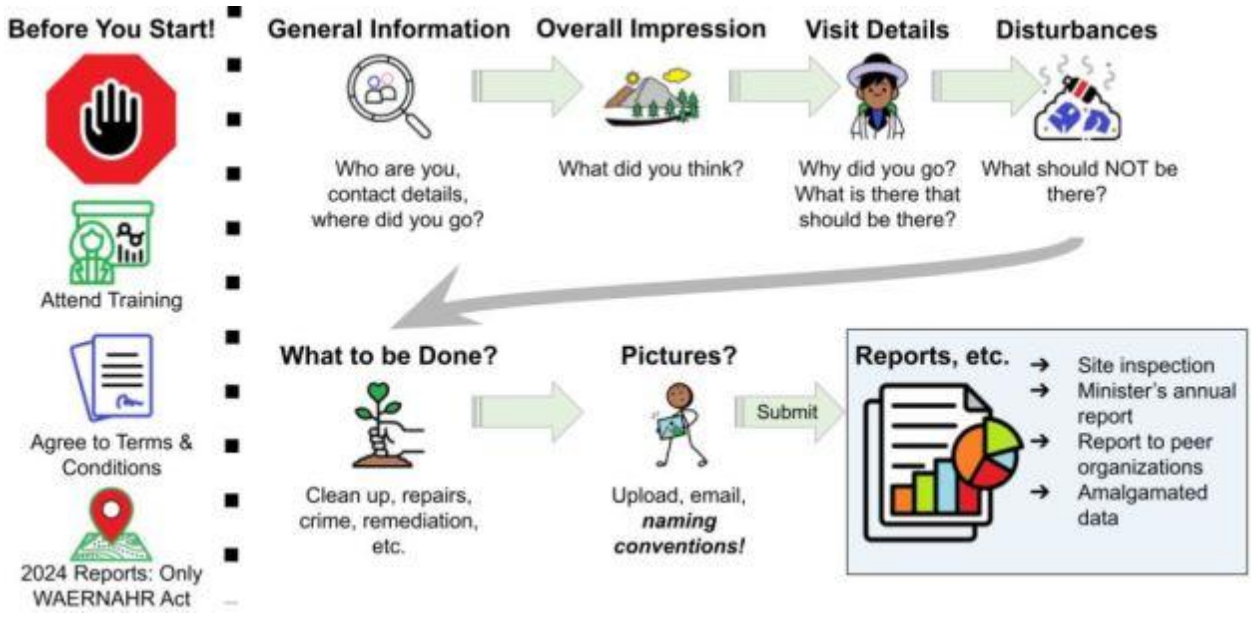


Webpage links is the first of a two-part change. The second part is the creation of an iNaturalist project for the Protected Areas. David F. and Tony B. are busily working on this and expect to have it ready for the next newsletter.

New observations within an area will show up in both places. As well, SAPAA can also run bio-blitzes for specific topics (such as the white spruce project described above). As you visit Alberta's Protected Areas be sure to submit both new iNaturalist observations and of course a Site Inspection Form.

SAPAA Site Inspection Training

Training was delivered in April on the new and improved Site Inspection form. Okay, slightly new and improved, most questions remain unchanged from 2024. Additional sessions can be arranged for individuals or groups by emailing ***president@sapaastewards.com***. You can also download the slide deck and script (sorry, no video at this point).



2025 Site Inspection Process: Precursor activities, report visit details, provide images, use result in a report.

Spring in the Sandhills

Springtime and early summer are especially good times to visit any of the sandhill Natural Areas north of Edmonton, such as Northwest of Bruderheim, Opal, Nestow and Bridge Lakes. The well-drained soils warm up quickly, allowing early-flowering species to bloom, and to attract their pollinating insects.

Other insects emerge too, and tiger beetles are characteristic of sandy soils and shores (see Kallum McDonald's macro shots of two tiger beetle species in Northwest of Bruderheim Natural Area). Tiger beetles (family Cicindelidae) are known for their predatory habits; they have large eyes and long legs that enable them to run fast in pursuit of prey. Their bodies are often white- or cream-blotched, facilitating camouflage.

A search on iNaturalist for a given Natural Area will indicate what you can expect to find there. Consider making your own contributions to iNaturalist if you visit, and of course submitting a Site Inspection report to SAPAA.

Boundary sign on Opal NA, 2022-06-16, M. Parseyan.

Early blue violet (Viola adunca) in flower at Northwest of Bruderheim Natural Area., 2025-05-01, H. Taube

Golden bean (Thermospis rhombifolia) coming into flower at Northwest of Bruderheim Natural Area, 2025-05-10,. K. McDonald

Adroit tigger beetle (Cicindela lengi ssp. versuta) at Northwest of Bruderheim Natural Area, 2025-05-10,. Kallum McDonald

sandy tiger beetle (Cicindela limbata) at Northwest of Bruderheim Natural Area., 2025-05-10, K. Mcdonald

June grass (Koeleria macrantha) in Opal Natural Area. 2022-06-16. M.Parseyan

*Northern ricegrass *Piptatheropsis pungens) at Opal Natural Area.2022-06-16. M. Parseyan*

Upper portion of Kamchatca rockcrews Arabis lyrata ssp. kamchatica) on sandy soil at Opal Natural Area. 2022-06-16, M. Parseyan.

Blue-eyed grass and bastard toadflax, Opal NA, 2022-06-16, M. Parseyan.

long-leaved bluets (Houstonia longifolia) on sandy soil in Opal Natural Area; 2022-06-16, M. Parseyan

Sand heather, Opal NA, 2022-06-16, M. Parseyan.

Botany Alberta in the Beaver Hills Biosphere, June 13-15, 2025

SAPAA members and non-members are invited to join in this three-day event hosted by the Alberta Native Plant Council and based out of the Strathcona Science Centre east of Edmonton. Open the link June 13-15, 2025: Botany Alberta in the Beaver Hills Biosphere to find more information and the registration form (participation is free). It is being billed as a "weekend of guided field trips, plant exploration and connection with fellow naturalists."

Membership

Annual membership renewal remains at $15 per individual, family or group steward and includes a $5 insurance fee the society pays to Nature Alberta.

E-transfers are preferred (**treasurer@sapaastewards.com**) but if payment is made by cheque, it should be made payable to ***Stewards of Alberta's Protected Areas Association*** (in full, the bank is persnickety) to c/o Patsy Cotterill, Membership Secretary, 7401 156 Street NW, Edmonton, AB T5R 1X4.

The membership year runs from October 1 to September 30. If you have changes to make to your information or wish to provide additional information, please provide updates by completing and emailing /mailing the Membership Form available on the Home Page.

Editorial Team, Links and Resources at a Glance:

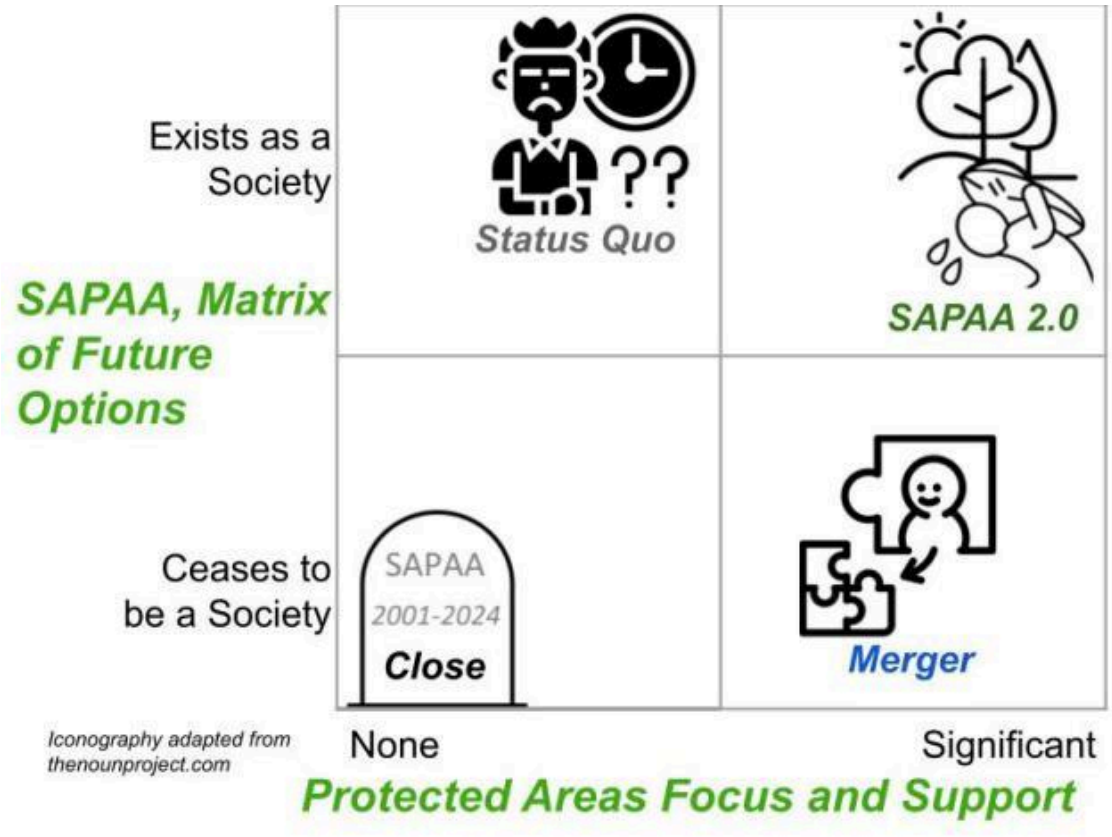
Editorial team: Patsy Cotterill, Frank Potter, Hubert Taube.

- List of Alberta's Protected Areas.
- Connect & Read.
- Online Steward Reporting form.
- New and Renewal of SAPAA Membership.
- SAPAA's FaceBook Group.
- Land Reference Manual | Alberta Parks.

Six Months of 2.0: A Report Card

Leave a reply

SAPAA is evolving through its SAPAA 2.0 initiative, focusing on functions previously handled by the Alberta Government. This multi-year effort aims to ensure an Occupational Health and Safety compliant volunteer program by 2025. Challenges include funding and volunteer availability, but the board remains optimistic about progress and community support.



SAPAA Matrix of Future Options: Status Quo, SAPAA 2.0, Close, or Merger with Another Organization.

SAPAA has been using this 2×2 graphic for the past two years. Introduced in "*Should I Stay or Should I Go?*", it laid out 4 futures for the organization. The left 2 quadrants are the status quo or inevitable. All organizations die and the status quo option is just a holding pattern before the inevitable.

SAPAA tried the merger option, but most peer organizations are facing similar struggles. Thus SAPAA 2.0 was born and the focus of the board's recent efforts.

SAPAA 2.0 – Thank You Board!

Speaking of the board, a huge thank you to them over the past six months for their work on SAPAA 2.0! It is a privilege to work with these smart and passionate people. They are not pushovers and we are following different paths because they had better ideas. Hubert, Patsy, Myrna, David, Tony, Madeline, and Tyler – THANK YOU.

SAPAA 2.0 – Overview

What exactly is SAPAA 2.0? In a nutshell, it is about taking on the functions originally done by the Alberta Government. This is a multi-year effort with 2025 focusing on infrastructure, 2026 an occupational health and safety (OHS) compliant volunteer experience, and 2027 confirming the parts are working together.

The 2025 program priorities were encapsulated in ten priorities (see Newsletter No. 52). The most important of these is the implementation of an Occupational Health and Safety compliant volunteer program.

The High Cost of Doing the Right Thing

In our topsy turvy world, the cost of doing the right thing goes up and the benefits of doing the wrong thing are rewarded. An example of this is visiting a protected area or being the land steward for one – versus abusing the same land.

The cost of complying with safety requirements increases while resources from the province is shrinking to a vanishing point. At the same time, running a social media channel that shows one churning up wetlands on a high-powered ATV can make the channel owner money. As an influencer, they may even be able to quit their day job and 'mudding' full time.

It is in this social context SAPAA 2.0 is being developed.

How is that 2.0 Working Out for You?

Returning to the 2×2 matrix, we knew that the 2.0 option would be challenging. In essence, with volunteer labour and freely available tools, we are recreating provincial staff and structures. Nevertheless, we are making progress.

The ***Site Inspection*** process is relatively stable. The questions are solid and are of value (thank you Tony). We are expanding the information available about the sites by ***integrating iNaturalist*** (thank you David, Tony, Hubert, and Patsy). We have a cordial ***relationship with Ministry*** officials (although their resources and freedom of action is constrained at best). We are running our first Community of Practice for Organizational Stewards (thank you BLESS and David) which is increasing the value for our members.

Planning to Climb Mount Safety

By the end of 2025 we need to conquer our biggest challenge, implementing an OHS compliant volunteer safety program. 20 to 30-years ago, suggesting that a volunteer drive to a site by themself seemed reasonable; now it seems untenable. Fortunately, the safety problem is solvable – but it will take Time, Talent, and Treasure.

To start, volunteers will need to attend and pass a Safety/Volunteer program. Likely online, this will involve reading material, watching videos, and then taking an exam. Annually, volunteers must recertify and attend a health and safety committee meeting. A valid first aid certificate may also be required for volunteers in a leadership role.

Stratified Safety

More than likely there will be different certification levels. At the top will be an elite cadre of individuals who are approved to go to sites on their own. A ***Lone Volunteer*** represents a high-risk activity. As a result, when this person heads out, they will go with SAPAA issued equipment. On their belt – bear spray, in their pack a first aid kit and satellite radio, in their hand a tablet pre-loaded with software to gather information.

This may all seem excessive, but it is also what is issued to staff members of a peer-organization who visit sites in and around Edmonton. If they needed it close to the city, how much more important is it when the site is hours away from the nearest cell reception?

How Much is SAPAA 2.0 Going to Cost?

SAPAA 2.0 is pricey but the alternatives are worse. The organization and volunteers cannot afford to be non-compliant. Beyond the material costs there will be organizational costs. Someone needs to ship the bear spray, inventory the satellite phones, and consolidate the submissions from the tablets. How much will this cost, stay tuned.

SAPAA 2.0: Reality, Options and Opportunities

While money is tight, granting agencies are stringent, and willing individuals are few and far between, I am ***cautiously optimistic***. Money can be found, volunteers trained, and systems established. I consistently hear strong support for the principles of what we are creating.

However, if sending volunteers proves too onerous, costly, or impractical there are other roles for SAPAA. For example, ***education***, encouraging ***site visits***, and supporting organizational stewards (such as Wagner or Riverlot 56). There is also a role ***consolidating information*** from a variety of sources to report on the state of Alberta's Protected Areas.

To use a catch phrase from the American TV show Mythbusters: '***Failure is Always an Option***'. In the show's context, it is critical to learn from both successes and failures to ultimately achieve your objective (in the Mythbusters case, this usually involved an explosion – something not recommended for SAPAA). By the end of 2025 SAPAA may come to the conclusion that sending volunteers into the field is beyond the resources of a small nonprofit. If that is the case, let's start talking about SAPAA 2.1. Wish us luck and let me know if you ***want to help!***

Helping to (White) Spruce Up the Place

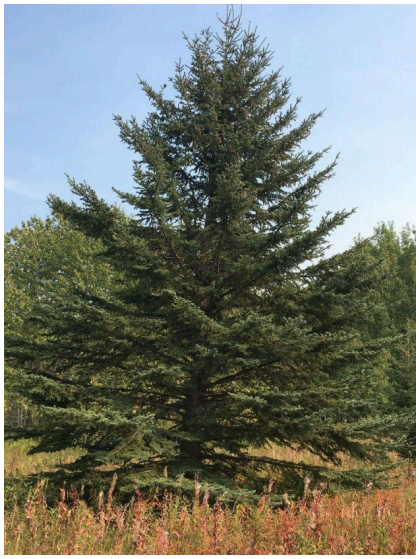
The white spruce, Picea glauca, is a familiar conifer. A UofA researcher needs SAPAA's help identifying stands of white spruce this summer through iNaturalist observations. While you are there, why not submit a Site Inspection report!

White spruce showing four-sided, pointed needles with white stomatal lines. (No photo information.)

The Government of Alberta's AI search engine describes this tree as [1]:

A white spruce tree, known scientifically as Picea glauca, is a coniferous tree native to North America, particularly found in Alberta. It typically grows to heights of 15 to 30 meters and has a conical shape with a narrow crown. The bark is thin and scaly, often grayish-brown in color. The needles are short, measuring about 1 to 3 centimeters in length, and are arranged spirally on the branches, giving the tree a dense appearance. The cones of the white spruce are cylindrical, measuring 5 to 10 centimeters long, and are green when young, turning brown as they mature.

White spruce is valued for its wood, which is used in construction, paper production, and various other applications. It also plays a significant role in forest ecosystems, providing habitat and food for wildlife.



Open-grown white spruce showing pyramidal shape. Halfmoon Lake Natural Area, 2022-09-10, P. Cotterill.

Rooting for Mycorrhizae

At the base of a white spruce (and every other plant in existence) is a small symbiotic miracle, the mycorrhizae [2]. This is a symbiotic association between fungi and the roots of plants. This relationship enhances nutrient uptake for the plant, particularly phosphorus, while the plant provides carbohydrates and other organic compounds to the fungi.

Mycorrhizal fungi extend the root system of the plant, increasing its ability to absorb water and nutrients from the soil. This association is crucial for plant health and growth, especially in nutrient-poor soils.

Ferf is Asking for Help from (and Providing it to) SAPAA

A friend of SAPAA, Christopher (Ferf) Brownoff is a PhD student at the University of Alberta who studies Mycorrhizae. He was initially engaged as part of our iNaturalist initiative to provide a researcher and user's perspective on the value of the tool. He also has a research question pertaining to the white spruce, 'where can I readily find naturally occurring stands of white spruce within a 2-hour'ish drive from Edmonton?'.

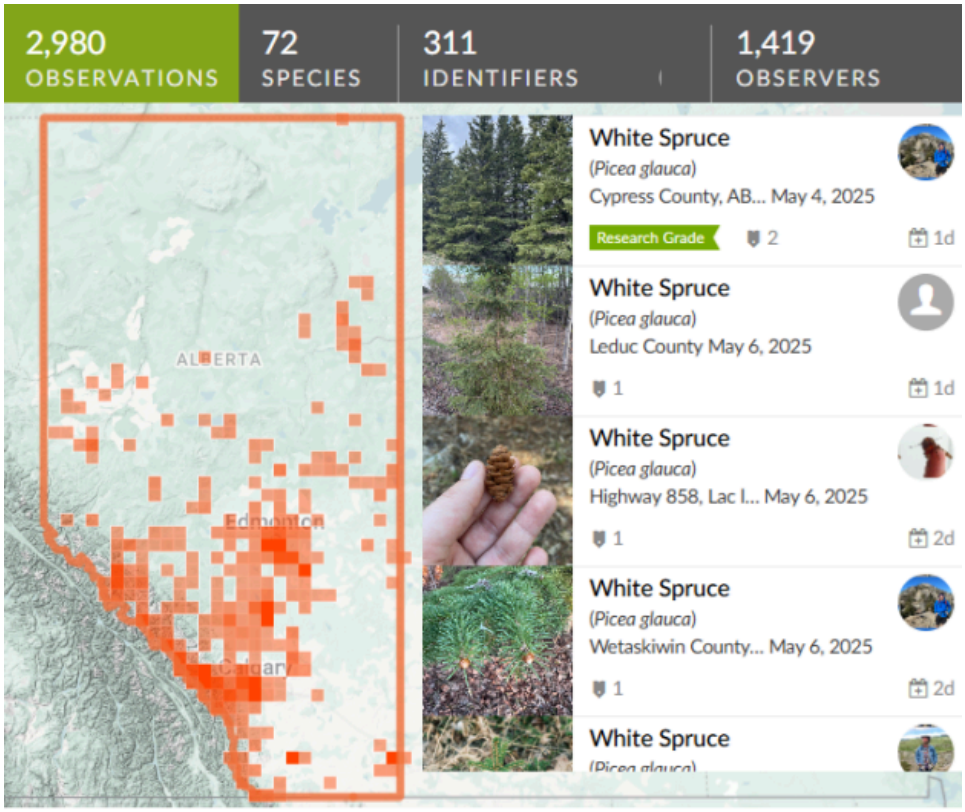
The reason the researcher is interested in communities of White Spruce as distinct from isolated trees. Natural stands are required as replanted stands may have introduced foreign colonies into the soil.

What Happens to the Observations and Why Involve SAPAA?

Normally Ferf would use satellite imagery and sort through government sources for this information. This is time intensive and not always accurate. Once a stand is located, he can then visit, take samples, do research-ee things, and write techie papers in scientific-ee journals (editors note, why yes – I am way out of my comfort zone writing this…).

The point being, knowing where there are good clumps of white spruce will save Ferf gas and time and advance scientific knowledge. It is also a darn good excuse to visit Alberta's Protected Areas, look at the trees, snap iNaturalist observations, and hopefully submit a Site Inspection. For SAPAA, we hope to generate more Site Inspections and also see how integrating iNaturalist can benefit our members and friends of SAPAA. For the observer, they get to go and look at trees!

Seeing the Forest for the (White Spruce) Trees



White Spruce

Observations in Alberta, done 2025-05-08.

At the time of writing there were a little over 2,500 white spruce observations in Alberta. Being a common tree, it is surprising there are so few. On the other hand, being a common tree, most people would walk by it in search of more interesting stuff.

Sprucing Up Your iNaturalist Observations

How can you help?

1. Become an iNaturalist member (if you are not already).
2. Know what a white spruce looks like (use this handy SAPAA Guide: [Getting to Know Alberta's Coniferous Trees | SAPAA])
3. Attend a kick off webinar where Ferf will explain his research and describe a white spruce. Webinar details are: [PENDING]

4. Go visit protected areas (and other locations) and look for white spruce trees noting the following requirements:
    - a. The stand of trees is about 100 or so individual trees.
    - b. A stand that is at least 100 M or more in the smallest dimension.
    - c. Not a cultivated stand (e.g. planted by humans).
    - d. Has about 30% or fewer other tree species.
    - e. There is a good mix of mature younger trees.
    - f. Ideally, less than a two-hour drive from the University of Alberta (but all observations are welcome!).
5. Submit iNaturalist observations of the trees (and Site Inspections).
    - a. Please submit at least 3 observations for the stand.
    - b. Provide a landscape image of the stand in its entirety.
    - c. Best effort within a 15-minute or so time period is greatly appreciated.
6. Look forward to your name being listed on a future peer review journal (okay, this is a long shot).

The Legal Cavet-ee Stuff – You are NOT a Volunteer

Due to insurance and occupational health and safety reasons, SAPAA is NOT asking you to volunteer and go look for the trees. However, if you are in the forest anyway, please consider doing the above. You might be going out on a private trip, with another organization, or other circumstances.

Notes and References

1. *Search conducted 2025-05-08, Alberta AI Search.*
2. *For an overview, watch: How Trees Secretly Talk to Each Other in the Forest | Decoder – YouTube.*