

No. 91 Winter 2023

Iris

The Alberta Native Plant Council Newsletter



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Native Plant
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Look for more information on the ANPC's website.
anpc.ab.ca



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Cover photo: Marsha Hayward
Forested river valley during the freeze-up period in northern Alberta.

Roadside Ditches: Space for restoring prairie ecology

Brenda Bohmer

It's not a new idea to plant native grasses and wildflowers in ditches. Others in North America have been doing this for quite some time, but there are not many examples in Alberta. Thanks to our small group of volunteers, we now have a 1.5-mile-long (2.4-kilometre-long) demonstration site in Camrose County, Alberta.

Ditches are a functional part of any non-urban road system. They function to drain water away from the roadway, and in extreme weather they may provide storm water detention. These ditches could also provide space for ecological connectivity, restoration of prairie ecology and pollinator corridors.

In 2019, Camrose County reconstructed 8 miles (12.9 kilometres) of gravel road near my farm. What an opportunity! Our small group, feeling the call to act,

made a proposal to the County and received approval to seed 1.5 miles (2.4 kilometres) of ditch with native grasses. We put together a plan for site preparation, and InnoTech Alberta was consulted to determine the most appropriate species for our site. A County crew hydroseeded the native mix consisting of blue grama grass, tickle grass, June grass and Rocky Mountain fescue in October 2020.

In spring 2021, blue grama and tickle grasses were the first to emerge (along with many weeds that were likely in the existing topsoil). The summer of

See **Roadside Ditches**, page 3



Brenda Bohmer



Brenda Bohmer

The local committee felt it was important to identify the site, its partners and its purpose. An application for small grant funding was made to the Alberta Native Plant Council, which provided funding for the signage.

ANPC Remembers Leslie Monteleone

Leslie was one of my most formative mentors early in my career as a vegetation ecologist. She taught me not only the identifying characteristics of countless plant species on various field trips throughout Alberta but many life skills that I still value to this day. We had many adventures together, and no one was more resilient on a tough field day. With Leslie I learned how to change my first tire, how to fix an Argo stuck deep in the bush, and an overall sense of comfort working in remote locations. Leslie used to joke that her field study sites all had one shared characteristic: a good downed log to perch on! I will remember her fondly, and her knowledge and contributions to Alberta's native plants and conservation will be missed greatly.

~ Kristyn

Leslie Monteleone was a forward-thinking and resourceful person whose dedicated service to the Alberta Native Plant Council helped bring it to where it is today.

Leslie was a real gem of a person who had a unique way of balancing leadership with kindness through her position as president. Her cautious but intelligent approach helped us work together as a team to modernize and develop new ideas.

Leslie was the reason I continued within my role in ANPC. She knew how to make you feel that your volunteerism was appreciated and worthwhile. And it was always exciting for me to see her name on native plant studies done in areas of Alberta's north where I live and work. She knew her stuff well and was familiar with the places I was talking about. I will always think of Leslie when I go to some of the parks and places where I know her work made a difference. We were lucky to have her.

~ Marsha

Leslie played a vital part in today's Alberta Native Plant Council as she helped to shape the organization in a myriad of ways. Leslie inspired others to not only love the natural environment but to volunteer their time in its conservation. Thanks for your inspiration!

~ Laurie



Leslie was a lovely person and very welcoming at the plant study group.

~ Sarah



Leslie demonstrated a consistent professional work ethic, was supportive of her colleagues and provided ANPC with strong leadership. It was a pleasure and a privilege to serve with Leslie on the ANPC Board.

~ Julie

Leslie was such a lovely person.

~ Christel

Leslie was one of the great botanists I had the privilege to work with; I was so lucky to work with the likes of Linda Kershaw, Dana Bush and Kim Ottenbreit, as well. Leslie was in that top tier of botanists, and she was certainly the best botanist Stantec ever had! She was great to be in the field with as she was more than willing to share her knowledge. She was also very patient in the office; I remember how she sat with me for hours at the mapping computer taking the time to explain everything in my early days.

Most people know all that, and there is no doubt she will be remembered for her dedication and incredible technical knowledge. But for me, it's the little things that make me smile when I think of Leslie. She had a ferocious sweet tooth! When we'd be working in the field and go out to a restaurant for dinner, she'd always ask if I wanted my after-dinner candy they sometimes give you with the bill. She loved hard candy so much, sometimes she'd grab extra! But honestly, my all-time favourite memory of Leslie will always be sitting in the truck on a break from a sweltering hot day with the air conditioning blasting as she fixed her makeup in the rearview mirror, so she could continue to look spectacular for the rest of the survey! An absolute class act all the way. She will be very missed.

~ Andrea

May those who knew and loved her find solace in knowing her memory lives on.

~ Anila ♦



Roadside Ditches, from page 1

2021 kept volunteers busy with trying to remove and reduce the weeds. Hand pulling, spot mowing and digging with small tree spades were the most common methods used. On-site informational signage was installed with funding provided by the ANPC Small Grants Program. The Edmonton Native Plant Society provided wildflower plugs and seeds that were planted in the ditch amongst the native grasses. By the time autumn arrived, the project ditch looked pretty good!

The June grass and Rocky Mountain fescue became more obvious in the spring of 2022. The wildflowers began to show more blooms and, of course, by early summer more weeds popped up as well. Weeding bees were organized, and volunteers were called upon again. Some spot spraying of Canada thistle occurred with great success! Slightly fewer hours were spent weeding during the summer of 2022 as compared with 2021.

This area had a generally wet growing season in 2022 with approximately 16 inches (40.6 centimetres) of moisture received by early summer, and half a mile (0.8 kilometre) of the demonstration ditch was wet most of the spring and summer. A July hailstorm flattened and damaged the wildflowers, and foxtail barley, which thrives under wet conditions, was dominant in that wet section throughout the summer. Spot mowing was not possible in 2022 because of the amount of standing water in the ditch. It will be interesting to observe what will happen in this stretch of the ditch in future years.

The smooth brome along the inside/field edge of select areas along the ditch looms as a serious threat to the native species. It is known to be aggressive and can readily encroach into areas where it may not be wanted. At this point, we feel this could threaten the viability of the project in places where smooth brome is growing adjacent to the ditch project. Any ideas on how we could relieve the pressure from the smooth brome would be appreciated.

In 2023, the ditch project will be in its third year. We hope to see more growth and spreading of the native grasses and wildflowers, and we definitely hope to weed less! We continue to observe and learn from this site.

We welcome you to visit the site and provide your ideas and comments.

Many thanks to all of our partners (Camrose County, Alberta Native Plant Council, InnoTech Alberta, Edmonton Native Plant Society) and, of course, to our volunteers for their continued devotion to help restore this demonstration section of ditch to a native and biodiverse roadside.

For more information, contact Brenda Bohmer at bbohmer@explornet.com. ♦

ANPC Small Grants Program for 2023

The ANPC will be accepting applications for Small Grants on January 1, 2023. An updated application form and information for applicants will be released by December 31, 2022.

Details about the program, including successful applicants for 2022 and project reports from grants awarded in past years, can be found on the [Small Grants Program page](#) of the ANPC website.

Please contact grants@anpc.ab.ca if you have any questions, and you are encouraged to apply if you or your group have a native plant project that fits the criteria of the grants program. ♦



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Puzzling Pairs: Shooting Stars

Lorna Allen

All photos by Lorna Allen.

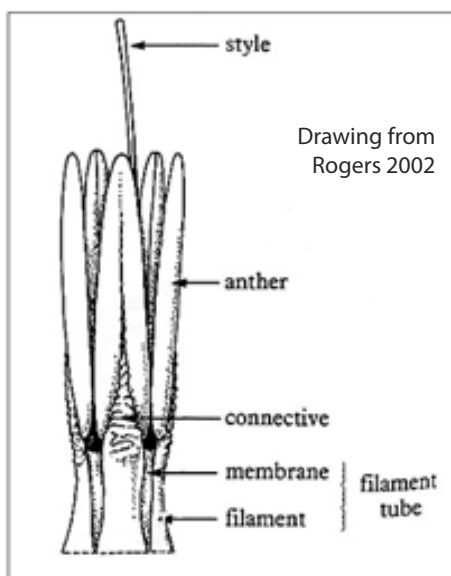
“Puzzling Pairs” (or the occasional “Tricky Trio”) is a series published in *Iris* with the objective of helping the plant observer to sort between species that can be hard to distinguish. Here is another article in the series – Shooting Stars. This pair is particularly puzzling for a number of reasons, including a blizzard of taxonomic changes. The shooting stars were in their own genus, *Dodecatheon*, but have now been added to the primrose (*Primula*) genus. This change is puzzling in itself; the shooting stars have flowers with the lobes turned back (reflexed) and the anthers more or less joined together around the style. Primrose flowers look quite different – but the genetic studies show that they are closely related. We can’t argue with the genetics, so although kept in the section *Dodecatheon*, the shooting stars and primroses are now all in the genus *Primula* (Mast and Reveal 2007).



Primula species



Dodecatheon (now also *Primula* species)



Drawing from
Rogers 2002

How many species of shooting stars (genus *Primula* section *Dodecatheon* – the ones with the reflexed petals) do we have in Alberta? The answer seems to be two, but which two is another puzzle. The study that resulted in the transfer of *Dodecatheon* to *Primula* (Mast and Reveal 2007) was published after the *Flora of North America* (FNA) Vol 8 (2009) was written, so it takes some sorting to find the FNA write-ups that align with the currently accepted grouping of species subspecies and varieties. Luckily, VASCAN keeps updated on these types of things, and the taxa that we have in Alberta are:

1. **Sticky shooting star** - *Primula conjugens* var. *viscida*
 - *Dodecatheon conjugens* var. *viscidum* is the synonym used in FNA.
 - *Dodecatheon conjugens* is not a direct synonym but is the taxon described in the *Flora of Alberta* (Moss 1983).
2. **Saline shooting star** - *Primula pauciflora* var. *pauciflora*
 - *Dodecatheon pulchellum* var. *pulchellum* is the synonym used in FNA.
 - *Dodecatheon pulchellum* is the taxon in the *Flora of Alberta* (Moss 1983).

As with the scientific names, there are numerous common names for our shooting stars, but the above seem to be the most appropriate for the varieties that are found in Alberta.

Whew, can we get to actually looking at the plants themselves? Not quite yet. The next bit of confusion revolves around the features of the flowers that are used to separate the taxa. The texture of the connective, for example, is very important – but what is a connective? Below left is a drawing that clearly labels the features that are referred to in most of the *Dodecatheon* keys.

So now, finally, we can get to the Alberta species. Right after this note: many of the features overlap so I’ve developed a comparison table, included at the end of this write-up, listing the features that can be helpful in distinguishing between the two species.

Saline shooting star (Saline SS) plants are usually hairless. As the name implies, sticky shooting star (Sticky SS) is usually, well, sticky, with small glandular hairs found on the leaf blades, the base of the flowering stalk (scape) and the stalks of individual flowers. Saline SS does not generally have glandular hairs on the scape. An easy feature to look for, but because the distribution of hairs varies within plants, relying on this feature alone can be problematic. Although most Sticky SS plants have small glands at least on the lower part of the scape, FNA says: “Even within the established range of var. *viscidum*, some populations may consist of both glandular and non-glandular individuals.” And although the scape of Saline SS is usually hairless, sometimes it is glandular-hairy. So, to confirm your identification, it is best to look at additional features when possible.

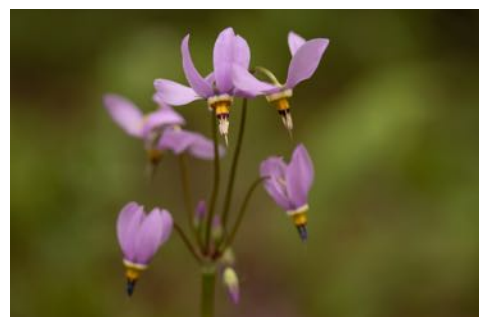
See **Puzzling Pairs: Shooting Stars**, page 5

Puzzling Pairs: Shooting Stars, from page 4

Sticky SS glandular hairs along a leaf edge



Saline SS hairless leaf



Saline SS flowering cluster

Comparing the descriptions in FNA, one of the more useful distinguishing features is the connective – the bit between the anthers. In the photo below you can see that the connective (arrow) has transverse wrinkles; wrinkles that go side to side, across the connective. In addition, although maroon at the base, the connective is yellow, fading to white. The yellow filaments above the connective are relatively short (usually 1 mm or less according to Douglas et al. 1999). Looking at the full plant, it also has lots of glandular hairs, and few flowers. This is pretty clearly Sticky SS.



Sticky SS flower close-up



Sticky SS plant

Now let's look at a Saline SS. The connective (circled) is maroon, and smooth. None of those transverse wrinkles to be seen, although sometimes the connective of Saline SS has longitudinal wrinkles. Also, the yellow filaments above the connective are longer – usually more than 1.5 mm long (Douglas et al. 1999). Plus, Sticky SS flowers are usually larger – longer flowers, longer anthers, etc. (check out the measurements in the following table) – and there may be up to 20 flowers per plant. Sticky SS has up to 10 flowers, but usually fewer. Careful though – sometimes Saline SS has as few as two flowers. If there are lots of flowers, it is probably Saline SS; if there are few flowers, it could be either species.



Saline SS flower close-up

*** A capsule is a dry fruit produced by a compound ovary made up of multiple carpels and that splits open when ripe.**

The fruits of shooting stars are dry light brown to tan capsules* that, when ripe, break open in one of two ways. The capsules of Saline SS are valvate – they spilt open along the edges. They are hairless to glandular-hairy, often reddish brown near the tip and sometimes speckled with red or maroon, and the valve tips are pointed.

The capsules of Sticky SS are sometimes valvate but usually “operculate” – they first break open at the top via a lid or cap. They are hairless and may be striped with purple. This is of course less straightforward than it seems. The lid blows away, and in both species the valves peel back along the edges of the fused ovaries. What is different is that the valves will have blunt tips in Sticky SS because the lid broke off first. In the photo below of Sticky SS capsules, you can see the blunt tips of the valves (arrow) and the somewhat stripy colouration.



Sticky SS capsules

See **Puzzling Pairs: Shooting Stars**, page 6

Puzzling Pairs: Shooting Stars, from page 5

As a final check, consider distribution and habitat. Saline SS tends to be found in wet meadows and saline flats throughout the southern half of Alberta north to the Athabasca River drainage (Moss 1983). Sticky SS has a slightly smaller range, only coming as far north as the Red Deer River drainage, and the habitat is given as “plains.” It seems to be associated with seepages and moist spots, but less associated with true wetlands.



The following table is summarized primarily from FNA, and it lists the distinguishing features that should help you to identify your shooting star with confidence:

Sticky SS in a grassland, taking advantage of spring moisture

Table comparing distinguishing features of Alberta shooting stars		
	Sticky shooting star (<i>Primula conjugens</i> var. <i>viscida</i>)	Saline shooting star (<i>Primula pauciflora</i> var. <i>pauciflora</i>)
Flowering stalks (Scapes)	Usually glandular-hairy, at least the lower part	Usually hairless, sometimes glandular-hairy
Leaf blades	Usually with small hairs, at least along the edges, sometimes hairless	Usually hairless, sometimes glandular-hairy
Leaf bases	Usually abruptly tapering to the leaf stalk (petiole)	Usually gradually tapering to petiole; petiole ± winged, (sometimes wingless near base)
Flower cluster (Inflorescences)	1-7(-10)-flowered	2-15(-22)-flowered
Flower stalks (Pedicels)	Usually with short glandular hairs	Usually hairless, rarely glandular
Calyx	5-12 mm long	4-8 mm long
Corolla tube	2-6 mm long	1.5-4 mm long
Corolla lobes	Usually magenta, sometimes white, 7-25(-35) mm	Magenta to lavender, (5-)7-15(-18) mm
Filaments	Usually separate (rarely partially fused)	Fused
Filament length	0.5-1.0 (1.5) mm	(0.7) 1.5-3.6 mm
Filament/tube colour	Yellowish or dark maroon	Yellow or maroon to dark purple or black
Anthers	5-9 mm long	3.5-5 mm long
Connective colour	Usually yellow at least near the tip, sometimes fading to whitish; sometimes maroon	Maroon
Connective texture	Usually transversely wrinkled, sometimes smooth	Smooth or longitudinally wrinkled
Capsule colour	Often striped with purple	Often reddish brown at the tip, sometimes speckled with red or maroon
Capsule teeth	Blunt-tipped	Pointed at tip

Up Next — The Vascular Flora of Alberta: Illustrations and Maps

Linda Kershaw and Lorna Allen

In June 2020, we self-published *Vascular Flora of Alberta: An Illustrated Guide* (Kershaw and Allen 2020). This book contains illustrated keys to all of the native and naturalized vascular plant species in Alberta. The keys include an illustration for each of the more than 2,000 species plus many labelled illustrations showing diagnostic features to help users understand terminology and interpret the keys. We continue to update the guide, and it is now in its fifth printing, available through Amazon. Thanks to the Alberta Native Plant Council (ANPC), corrections and enhancements to earlier printings are available in the [publications section of the ANPC website](#).

When we started on the illustrated guide, we decided that a top priority would be to develop a publication that would be suitable to carry in the backpack. To keep bulk and weight down we left out synonyms, varieties, subspecies, authorities — taxonomic data that are important but can be looked up later. Keeping it portable also meant keeping drawings small and focused on key characteristics.

In gathering illustrations for the guide, we compiled a collection of large-scale digital drawings, which were then edited and reduced in size to fit the limited space available. Consequently, we have thousands of larger images on file that are often more detailed than the drawings that appear in the *Vascular Flora of Alberta: An Illustrated Guide*. Why not use them?

So, we are now starting to work on a companion volume to the illustrated guide, that people may use in conjunction with the keys. This will be a larger format book (8 1/2" x 11" rather than 6" x 9") and will include larger and often more-detailed drawings. With rare exceptions, the keys in *Vascular*

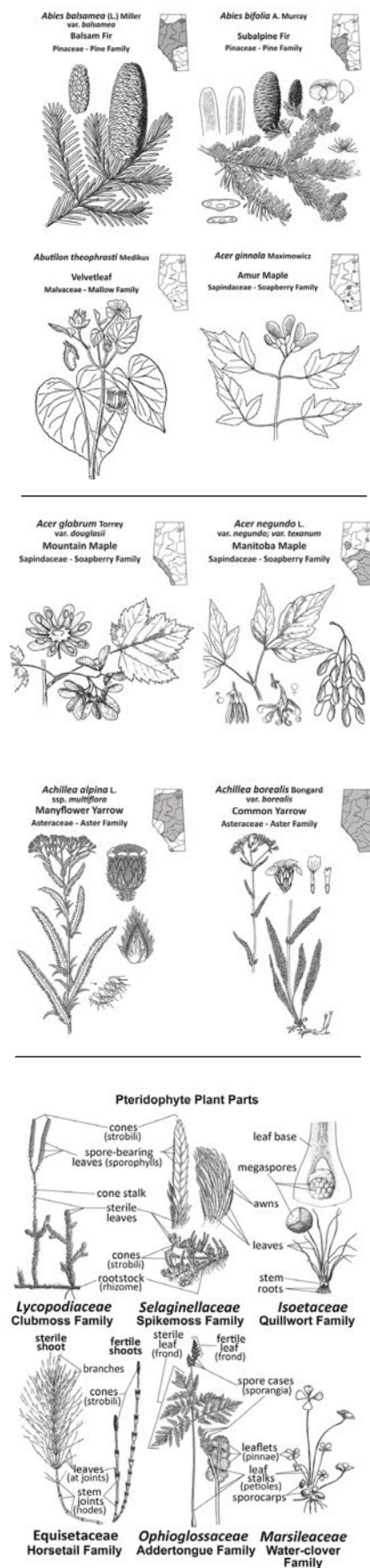
Flora of Alberta: An Illustrated Guide take the user to the species level, but do not include the over 600 subspecies (ssp.) and varieties (var.). Also, common names and the authorities for scientific names are not included. In this new volume, we intend to include some of the taxonomic details that were omitted from the guide in the interest of portability.

Distribution maps can provide interesting information and can be helpful in identification. Although the *Flora of Alberta* (Moss 1983) includes maps for most of the native species of Alberta, it does not have maps for exotic species or for the roughly 300 additional species that have been discovered in Alberta since 1983. Using the many sources of published plant distribution maps that cover Alberta, we plan to develop and include as many Alberta distribution maps as possible in this new companion volume — *Vascular Flora of Alberta: Illustrations and Maps*.

As with the illustrated guide, the companion volume will be self-published through Kindle Direct Publishing, allowing us to keep costs and pricing to a minimum. However, there will be some charges for the rights to use some of the illustrations, and ANPC has very generously offered to help cover these costs. The *Vascular Flora of Alberta: Illustrations and Maps* will take some time (and work!) to produce, but here is a sneak peek at some of the pages.

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News and Events

Review of Rare Vascular Plants of Alberta, 2nd Edition

Have you used the RVPA, 2nd edition this past season? We are looking for someone to review Rare Vascular Plants of Alberta, 2nd edition. If you are interested in submitting a review, please contact Julie at treasurer@anpc.ab.ca.

Podcast: Planthropology podcast Episode 36 "Plants of the Winter Solstice"

From the show description:
"The winter solstice is the first day of winter, the longest night of the year, and a day revered by countless cultures in the northern hemisphere throughout time. Let's chat about some of cool traditions and interesting plants involved in the solstice!"

Listen [here](#) or wherever you get your podcast fix.

Canadian Geographic: Network of Nature

Canadian Geographic has launched a [new resource called Network of Nature](#). It encourages planting native species to restore native biodiversity. It includes a search feature to help people choose the best native species to plant based on criteria such as light, moisture and soil characteristics as well as an interactive map of native plant nurseries. Learn more about Network of Nature [here](#).

Floating Island Research at Olds College

CBC recently covered a story on a project at Olds College that is researching the use of native wetland plants to remediate runoff water via nutrient uptake. Floating islands of plant species are deployed into a pond of feedlot water in order to investigate their ability to improve water quality. Read more [here](#).

May Plant Count

For anyone interested in plants and flowering, participate in Nature Alberta's Annual May Plant Count. Learn more at the Nature Alberta website: [May Plant Count](#).

Winter reading suggestions

Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants

Botanist Robin Wall Kimmerer reflects on scientific and Indigenous knowledge, our relationships with other living beings, and what we can learn from them. An uplifting read for the long dark nights.

If you enjoy *Braiding Sweetgrass*, you can also check out Dr. Kimmerer's book *Gathering Moss: A Natural and Cultural History of Mosses* for a thoughtful, beautifully written look at the world of mosses.

Happy reading!

Registration for the Prairie Conservation and Endangered Species Conference (PCESC) is now open!

The conference will be held at the Calgary Zoo from February 21 to February 23, 2023. The theme of the conference is Prairie Collaboration, Connection and Conservation (PC3). The program has not been posted, but will be soon, so stay tuned! To register, click [here](#).

For more information about the Alberta Prairie Conservation Forum, visit [their website](#).



Puzzling Pairs: Shooting Stars, from page 6

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- VASCAN, Database of Vascular Plants of Canada, accessed November 2021. <https://data.canadensys.net/vascan/taxon/22668> ♦

Iris is published three times a year by ANPC. The Council aims to increase knowledge of Alberta's wild flora and to preserve this diverse resource for the enjoyment of present and future generations.

If you have an announcement, article or other item, you are invited to submit it to the editor for publication. Items concerning native plants will be given highest priority.

The editors reserve the right to edit submissions, but will review changes with the authors whenever possible. Disputes will be resolved in favour of the audience.

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Submission deadline for the next issue:
December 15, 2022

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