

WAGNER NATURAL AREA NEWSLETTER

Volume 22 Number 1 June 2008

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



Upcoming Event: **Come Join Us in Wagner Natural Area for our
Annual Orchid Walk
on Sunday June 15, 2008**

Guided tours from the Main Gate: 10 a.m., noon, 2 p.m.



Yellow Lady's-slipper

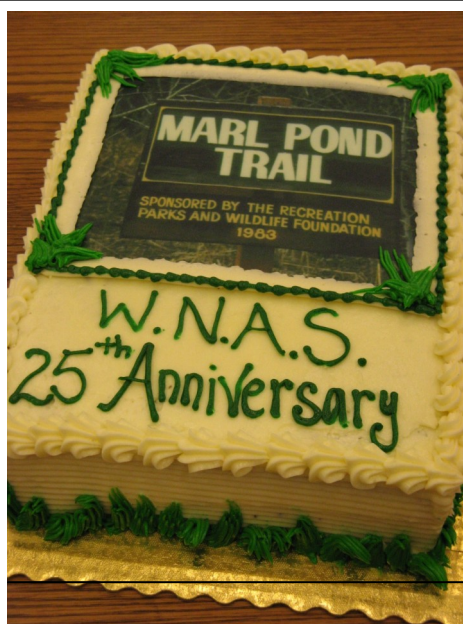


Pale Coral-root Orchid



Round-leaved Orchid

Celebrating the 25th Anniversary of The Marl Pond Trail!



At the Annual General Meeting of the Wagner Board on March 20th this year, we celebrated the 25th year since the beginning of construction of the Marl Pond Trail with the cake shown at left!

See *Partners in Preservation* (Alberta Parks' Stewardship Program magazine), Spring 2008 (# 16) issue, pages 1 and 4, for more details on the history of Wagner's main trail.

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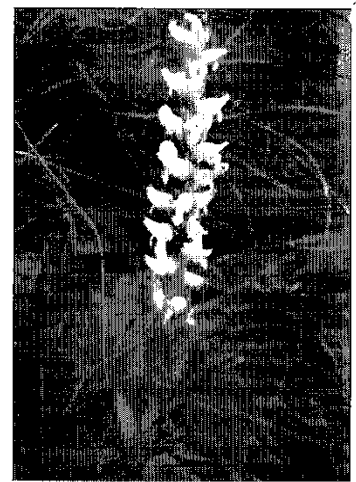
Plants, Plants... the Good and the Bad, or the Wanted and Unwanted...



Sparrow's-egg Lady's-slipper,
Cypripedium passerinum.
Flowers mid to late June.



White Adder's-mouth, *Malaxis
monophylla*. Flowers in July.



Hooded Ladies'-tresses,
Spiranthes romanzoffiana.
Flowers in July and August.



Canada or Creeping Thistle,
Cirsium arvense. Flowers in July
and August.



Caraway, *Carum carvi*.
Photo taken in Cadomin, AB.
Flowers in June and July.



Orange Hawkweed, *Hieracium
aurantiacum* (June). This species was
recently declared a noxious weed by
Parkland County. We have a small
population in the Villeneuve field.

Of course, plants are only "bad" from a human point of view. Each plant alive today is a success story, employing complex strategies to feed itself, propagate, defend itself from herbivores, counter competition and expand into new territory. No plants more clearly demonstrate these strategies than weeds. They command respect, even as one wages war on them!

May Flower Count in Wagner, May 25, 2008: At a rough count, **51 species** in all in flower, 44 in the "core" Wagner NA and the balance in the Oxley, Porter and Nature Conservancy properties. This compares with 60 last year, with comparable or slightly lower phenology codes. Thanks to participants Pat Clayton, Patsy Cotterill, Alice Hendry, Dorothy Howard, Rebecca Milner, Steven Symes and Ashley Thorson.



The Wagner Grapevine



From the President's, Ben Rostron's report, delivered at the Annual General Meeting, March 20, 2008:

Ben highlighted some of the major things the Wagner Board accomplished this year as well as items that are still being worked on.

A revision of the constitution and bylaws (last updated in 1997) was completed this past year, and passed government scrutiny in early fall of 2007. The main changes were clarification of our membership categories. (Kudos to Beth Jenkins and Pat Clayton for steering this through.)

Another achievement was convincing, with the aid of many supporters, Parkland County not to proceed with the proposal in their new Municipal Development Plan (MDP) to change the zoning of the land south of Wagner from its current "Agricultural General" to "Industrial/Commercial." This could have had grave consequences for our water recharge area and the Natural Area in general. Apparently the County received over 100 phone calls, emails and letters opposing the proposed change on the Natural Area's behalf. We spent much volunteer time on the MDP review process, including attending public meetings, completing surveys and interacting one-on-one with staff at the Parkland County Office.

With respect to weed control, we held "pulling parties" for caraway in the Villeneuve and Atim fields, killed off some tansy, established some test plots for Canada (creeping) thistle control, laid waste with our new "weed eater" tool (mainly wielded against thistles in the Atim Road ditches), consulted with experts on chemical control of weeds, and looked at options for the reclamation/restoration of cultivated fields in the south. (All of this work will continue in 2008.)

The Wagner Board also gave some thought and action to recruiting new volunteers, members and directors, in an effort to combat what is now becoming known among volunteer organizations as "the succession problem."

Future endeavours include more work of an educational nature, to provide our visitors with a more rewarding experience. In other ways, too, we are looking ahead to the future, ever mindful of the threat that surrounding development poses to Wagner... and seeking to capitalize on opportunities to protect it....

The Wagner Management Committee welcomes three new voting members to the Society: **Cathy Mowat, Robin Leech and Jean Crozier.**

Special thanks to the following:

NAIT carpentry students and Irl Miller for the delivery of the new wheelchair-accessible biffy. (Warning: it still needs some work before it is fully functional!)

Andy and Alice Hendry for re-tiling of the roof of the noticeboard at the start of the Marl Pond Trail

Irl for progress with fencing to the south...

Dick and Pat Clayton for ongoing vigilant monitoring of the site and work on the Trail

Cathy Mowat for active participation in various ways...

Ben Rostron for promotion of Wagner Natural Area at hydrogeology and orchid conferences...

Derek Johnson and the Junior Forest Wardens for another round of spruce tree planting in the Villeneuve field (some 500 young trees planted in a matter of 90 minutes in May – boy, those guys don't mess about!).

Kudos to **Alice Hendry**, who is Wagner representative on the newly constituted Acheson Area Structure Plan (AASP) Steering Committee. The AASP is currently under review by Parkland County. It covers an area bounded on the north by Hwy 16, on the south by S.H. 628, on the NW by the border with the City of Spruce Grove (and so includes Wagner Natural Area), on the SW by Spruce Valley Road and on the east by Hillview Road, two miles east of Hwy 60.

Wagner Natural Area Society Board 2008-2009

26519 Highway 16, Spruce Grove, AB T7X 3L4

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

Executive:

President Ben Rostron (434-3839)
Past President Alice Hendry (962-4836)
Vice-President Pat Clayton (456-9046)
Treasurer Pat Webb (458-3477)
Secretary/Editor/Membership Patsy Cotterill (481-1525)

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Patsy Cotterill
Alice Hendry
Beth Jenkins (458-1794)
Mike Jenkins (Webmaster) (481-8695)
Irl Miller (455-3866)
Ben Rostron
Pat Webb

Other Responsibilities: Pat Clayton (Archivist); Jasper Keizer (Fire Warden) (962-2745);

Webmasters: Mike Jenkins & Pat Webb

Lichens of Wagner – Mealy-Forked Cladonia (*Cladonia scabriuscula*)

By J. Derek Johnson



There are over 125 species of so-called “cup lichens” (*Cladonia*) in North America. Mealy-forked cladonia (*Cladonia scabriuscula*) falls into a group that has hollow stalks, but unlike the more familiar reindeer lichens, the stalks are very little branched and possess a cortex (tough outer skin). The stalks are whitish-grey in color and from 3-11 cm tall and 2-5 mm in diameter (most specimens from Alberta seem to fall in the range of 3-5 cm tall and 2-3 mm in diameter). The largest specimens are found along the coast. The two most distinctive features of this lichen are the granular sorediate (like they are covered with flour) tips and the squamules (like shingles) on the stalks. Apothecia (fruiting bodies) are rarely produced. When they are formed, they are small, dark brown and often on the end of corymbose (flat-topped) branches. The species most commonly grows on soil, humus, or decaying wood in open to shaded localities at lower elevations. It is most often confused with many-forked cladonia (*Cladonia furcata*), but that species lacks the granular soredia at the tips of the branches and is not common in Alberta.

Mealy-forked cladonia is only one of several common names for this lichen. It has more common names than many of the other cup lichens, both because of its appearance and distribution. Other common names include: many-winged cladonia, shingled cladonia, dusty shrublet lichen and forked shore lichen. Wings and shingles refer to the squamules on the stalks, dusty to the soredia at the tips of the stalks and shore lichen for its propensity to grow near the sea coast over much of its range.

I took particular interest in this species when I was assisting staff from the provincial government with their biophysical inventory of several Wildland Provincial Parks in northern Alberta. I became interested because I was not finding it in the northern parks and I was wondering why, considering the fact that the distribution of many *Cladonia* species is

widespread arctic-boreal. Checking the literature (Brodo *et al.* 2001; Goward 1999; Thomson 1984) to better define the distribution of this lichen, what I found was intriguing. The species is found on all continents except Africa. In North America it ranges from northern Alaska across Canada to Labrador (with some notable gaps), south in New England to Virginia, and in Wisconsin, Michigan and Minnesota. In the west it occurs along the coast from northern Alaska south to southern California. The distribution of this species more closely approaches boreal-temperate. The gaps in the range are what particularly interested me. The distribution is relatively continuous from Labrador west to the Manitoba-Saskatchewan border. It occurs in the Porcupine Hills of eastern Saskatchewan, near the Manitoba border, but otherwise seems to be absent from Saskatchewan. (Is this gap real or a result of undercollecting?) For whatever reason, the species does not appear to occur on the Canadian Shield west of eastern Manitoba. In Alberta, the species can be found in scattered localities in a line from Jasper National Park to Edmonton to Lac La Biche in the south, northward from there to north of Fort MacKay in the east and Zama City in the west. Westward, the species again apparently disappears until you get to the temperate rainforests on the west coast of British Columbia.



The Wagner Natural Area is not the best place to go if you want to find lush growth of macrolichens. Much of this is because of the area's proximity to a large city and its air pollution, particularly from vehicle exhausts, but also from various industrial sources. If you are a lichen, you have to be tough or able to hide to survive in such an area. In this respect, mealy-forked cladonia is a good hider at Wagner. It is one of the most shade-tolerant of the cup lichens. You are most often going to find it growing in moss or humus in relatively dense black and/or white spruce stands or occasionally mixed white spruce – balsam poplar stands.

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On rare occasions it can be found on decaying, but still firm, wood in such stands. Often the only clue to its occurrence is a few whitish-grey "toothpicks" sticking up through the moss or humus. Try to find some the next time you are in a spruce stand at Wagner.

References

Brodo, I. M., Sharnoff, S. D., and Sharnoff, S. 2001. *Lichens of North America*. Yale University Press, New Haven, CN.

Goward, T. 1999. *The Lichens of British Columbia. Illustrated Keys. Part 2 – Fruticose Species*. B.C. Ministry of Forests Research Branch, Victoria, B.C.
Thomson, J. W. 1984. *American Arctic Lichens. 1. The Macrolichens*. Columbia University Press, New York, NY.

Spiders of Wagner Natural Area

In 1985 the then Provincial Museum of Alberta undertook a collection of invertebrates in Wagner Natural Area (WNA). The project was directed by Dr. Albert Finnamore, Curator of Invertebrate Zoology.

Terry Thormin, entomologist/technician at the Museum, and a Director of Wagner Natural Area Society, did much of the actual collecting of insects and spiders.

Dr. Robin Leech, a local arachnologist, recently completed a series of identifications of the spider component of this collection, identifying 209 species out of around 300 species that he estimates to occur in the Natural Area. Leech presented some of his findings at the Wagner Open House last November, and together with colleague Donald Buckle, is working on a scientific paper for publication.

The 209 species fall into the following 17 families (the number in parentheses indicates the number of species belonging in that family found in Wagner):

Agelenidae (2); Amaurobiidae (2); Araneidae (13); Clubionidae (12); Dictynidae (1); Gnaphosidae (10); Hahniidae (2); Linyphiidae, subfamily Erigoninae (72), subfamily Linyphiinae (25); Liocranidae (1); Lycosidae (19); Mimetididae (1); Philodromidae (10); Pisauridae (2); Salticidae (14 or 15); Tetragnathidae (?); Theridiidae (9); Thomisidae (12).

Identification to species level represents a large amount of detailed, dedicated, time-consuming work and Leech is to be congratulated on this achievement. Of particular interest, Leech notes, is the occurrence in WNA of the water spider, *Dolomedes striatus*, which he found only recently (1987) in Alberta. He also found three species in Wagner that are new to the Province. One of these, *Clubiona bishopi*, represents a 1700 km westward range extension from its previous records, which are in the Thunder Bay, Ontario area.

Leech notes that 300 species of spiders represents significant diversity for a relatively small geographic area (Wagner Natural Area) with somewhat uniform habitats (wetlands, peatlands), and he speculates that this assemblage of species must have been in place

prior to glaciation rather than coming together since. Because WNA is only 4,700 years old (as determined from peat cores), it could not have served as a refugium for these species during glaciation (10,000 years ago). Leech hypothesizes that this assemblage survived glaciation in one of two ways: either it retreated to wet areas south of the ice sheets during the Wisconsinan glaciation and remained there until the ice retreated, or it remained in wet areas between the Cordilleran and Continental (Keewatin) ice fronts in a "wandering refugium" (that is, the assemblage moved following the appropriate environmental conditions as the environment changed).

Now retired, and with more time to devote to spider identification and untangling the mystery of the origin of Wagner's rich assemblage of species, Leech plans to do further collecting in WNA.

References:

Finnamore, A.T. 1987. Invertebrate biodiversity in north temperate peatlands. Newsletter of the Biological Survey of Canada (Terrestrial Arthropods) 6 (1):8-13.
Finnamore, A.T. 1988. Ecological collections and long-term monitoring with respect to the Wagner peatland. Newsletter of the Biological Survey of Canada (Terrestrial Arthropods) 7:10-14.
Leech, R., Buckle, D.J. 1987. The first records of *Dolomedes striatus* Giebel in Alberta and Saskatchewan (Araneae: Pisauridae). The Canadian Entomologist 119 (12):1143-44.



Dolomedes triton, Fishing Spider. From Internet

Weeds in Wagner, Part 2

By Patsy Cotterill

In the fall issue of the newsletter I noted that the three weedy species that are particularly troublesome and are our current targets for control in Wagner Natural Area are Canada Thistle, Perennial Sow-thistle, and Common Tansy. All are members of the Daisy family (Asteraceae), a very large and successful family (comprising some 10% of all vascular plants) that includes a large number of weedy members. Knowing how to tackle these plants, all on the "Noxious Weeds" list for Alberta, is a challenge, as the requirements for control are complex and often specific.

Perennial Sow-thistle, *Sonchus arvensis*, a native of Europe and Asia, was introduced accidentally into North America in the early 19th century and is now widely distributed across Canada, as a serious weed of agricultural fields, rivershores, wetlands and other moist natural areas. In natural situations it can retard the successful establishment of native species and monopolize water resources.

It comes in two varieties, var. *arvensis* and var. *glabrescens*. (Var. *glabrescens* has also been given species rank as *Sonchus uliginosus*.) This latter taxon is by the commoner plant in western Canada. Interestingly, both varieties appear to occur in Wagner's north field (the first main field as you enter by the main gate) but var. *glabrescens* is much the more abundant. Var. *arvensis* has glandular hairs on its flower-head stalks and on the bracts that form the cup-like green involucre that encircles the composite flower head; var. *glabrescens* lacks them.

Perennial Sow-thistle is a tall, perennial herb containing a white milky latex. The lance-shaped leaves, which may be deeply cut to lobed to entire, and have soft spines on their margins, occur mainly towards the base of the flowering stem. The large (3-5 cm dia.) flower heads are composed entirely of yellow, ray florets with both male and female parts. The fruits (achenes) are topped by a pappus of white hairs that aid in wind dispersal. The hairs are also hooked, which allows the pappus to cling to animal fur and clothes.

The species reproduces by seeds, by vertical thickened roots and by horizontal roots. A single plant can form large patches of stems through spread by shoots derived from buds on the roots, but seed production in isolated patches is poor because the plant is self-incompatible (cannot be fertilized by its own pollen.)

Perennial Sow-thistle prefers moist, loamy soils and in Wagner Natural Area it grows in the ditch alongside the parking lot, in the north field (south of the main gate) and as a large infestation in a field at the south-east end of the property. A few plants have become established in the peaty spruce woods at the north end of the Marl Pond Trail but mostly these do not flower in the deep shade and lack vigour. The plant is susceptible or variously resistant to a range of herbicides, susceptibility also depending on stage of growth. The waxy coating on the leaves resists adhesion, so an additive may be required to improve adhesion of the herbicide. Tillage in a field situation reduces the reproductive capacity of the roots; mowing is less effective,

although pasturing cattle and sheep, which find the plant palatable, can significantly reduce its numbers. Infestations have been reduced by spring ploughing followed by cultivation at 2-4 week intervals throughout the summer.

Canada or Creeping Thistle, *Cirsium arvense*, was introduced to North America from Europe in the early 17th century. Globally it occurs between 37 and 58-59 degrees north latitude; its southern distribution is restricted by high summer temperatures and short day lengths; its northern extension by low temperatures. A tall perennial herb, it forms extensive clonal patches by spread from shoots developing from buds on laterally spreading roots. It has prickly, lobed leaves and can be distinguished from other thistles by its small heads (less than 2.5 cm high), which are made up of predominantly male or female florets, and lack of spiny-winged stems. Several varieties are recognized, the most common in our area being the prickly var. *horridum*. Shoots emerge when the mean weekly temperature reaches 5°C, and this is followed by rosette formation and vertical growth in June. Flowering is from June until September. Mild winters probably encourage the spread of Creeping Thistle because of greater root and root-bud survival; drought sets it back.

Cirsium arvense competes directly with native vegetation for water, nutrients and minerals, thus displacing it and decreasing species diversity. It does have some beneficial aspects: a number of insects visit it for nectar, and butterflies such as the Painted Lady feed on it.

Since it thrives on full sun and on moist soil with a high nitrogen content it is not surprising that the main infestations of Creeping Thistle in Wagner are in the open fields, or in the adjacent roadside ditches. Fortunately, it is intolerant of shade (so it will not invade forests with dense canopy) and of peaty soils.

So, how do we prevent the spread, and it is to be hoped, eventually eliminate Creeping Thistle, from our fields? For years certain Wagner Board members have made heroic efforts in this regard by hand pulling shoots with the rationale that depleted of its photosynthetic shoots year after year, the plants must slowly starve to death. Unfortunately, the plant can grow faster than we can pull it, so we are looking for other methods. There is consensus in the literature that ploughing and cultivation is not indicated for this species as it can propagate readily from both stem and root fragments. As well, a combination of methods is often useful, and at least two growing seasons are necessary to determine whether a particular type of control is effective. With herbicides, two or more applications have proved better than a single application e.g., spring/fall or fall/spring, with fall treatment being more effective than spring because the translocation of photosynthates from shoot to root is greatest when plants are in the rosette stage, so the herbicide is actively moved to the roots at this time. Glyphosate is absorbed best if applied to new green leaves in September.

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One study found that control is improved if the thistles are cut in late July and the new sprouts are treated with glyphosate about four weeks later in late August (“August rosette stage”). The next best treatment is at the flower-bud stage, when the root system is at its most reduced and root reserves are at their lowest, so are easier to kill.

For further details on this plant and its control, see The Nature Conservancy (US)’ Element Stewardship Abstract for *Cirsium arvense* at <http://tncweeds.ucdavis.edu/esadocs/cirsarve.html> and click on Species Management Summary (“ESA”) under Documents – Adobe Acrobat.

Last year in the north field we established three 5 m by 5 m contiguous test plots containing thistles and applied three treatments: “mowing” (by “weedeater”), glyphosate application, and hand-pulling, after counting the number of thistles in each plot. We plan to apply the same treatments to the same plots this year. Perhaps we should also have estimated the cover of native plants in these plots, as weed-eating and hand-pulling have similar effects on the thistle, but likely differential effects on other plant species.

However, native plant diversity is low in all plots, with smooth brome (*Bromus inermis*) providing the main ground cover, with some introgression by Common Wild Rose (*Rosa woodsii*) and Canada Goldenrod (*Solidago canadensis*).

Common Tansy, *Tanacetum vulgare*, was introduced from Europe to North America as an ornamental, medicinal and culinary herb. It is a tall, multistemmed, stiff-growing perennial with dissected fern-like leaves, and flat-topped clusters of yellow, button-like composite flower-heads. Its medicinal qualities lie in its aromatic, volatile oils, which have been used for such purposes as a vermifuge. Once established, Tansy increases in size and number of plants (it is dispersed readily by seed, for example, along watercourses) and outcompetes native vegetation. In Wagner it occurs as isolated clumps in our moist, fertile fields. Here again, control is best achieved by repeated treatments over several seasons. Cultivation is contraindicated, as Tansy can regenerate from root fragments, and digging up the roots rarely removes them successfully all in one go. However, because our infestation is not extensive, root removal combined with herbicide treatment over several seasons may allow us to eliminate all these weeds over time.



Portion of dug Perennial Sow-thistle



Portion of Common Tansy plant, showing roots and new shoot

Information for the above article was gleaned from a number of sources, researched on the Internet. However, time constraints did not allow for a comprehensive search. See <http://www.srd.alberta.ca/forests/health/invasiveplants/legislation.aspx> and check list of species below “Noxious Weeds” for more information.

Volunteers Needed!

We will be carrying out a “caraway pull” and other weed control of various kinds throughout the summer. If you would like to volunteer to help, please call any one of the directors listed on page 3 for more information on when the events are scheduled. Thanks!

Wildflowers of Wagner No. 29

Carex concinna R.Br. Family Cyperaceae

Carex concinna is a small sedge of rich peaty soil in open woods, especially in calcareous areas. It is loosely clumped and often forms small patches of plants that are connected by slender creeping rhizomes. It is often found around the base of spruce trees in the moister parts of woods.

The leaves, which are dark green and 1.5–3 mm wide, are mostly basal and tend to splay out over the ground. The flowering stem, which often curves inward, rises from within the leaves to a height of 5–20 cm. The flowers are borne at the top of the flower stalk in 3 or 4 spikelets, consisting of a single slender terminal spikelet of male flowers and 2 or 3 spikelets of female flowers below it. A bract girdling the spikelet stalks consists of a sheath with a narrow, barely discernible blade.

The male spike, with the stamen-bearing flowers, is shortly stalked or sessile and very slender, about 3–6 mm long and less than 1 mm wide. The female or pistillate spikes are 4–8 mm long and reach a width of 3–4 mm, as the 5–12 closely-set fruits, or perigynia, develop. Each perigynium is about 3 mm long at maturity, ellipsoid, shortly stalked, pale green and densely hairy, giving it a fuzzy appearance. At the top the perigynium narrows abruptly to a short, oblique beak that is topped by three short stigmas that are characteristically curled over. Each perigynium is subtended by a reddish-brown scale about half its length, which has white papery edges that are minutely fringed.

Beautiful sedge flowers about mid-May and develops fruit throughout June.

The species occurs across Canada and the northern U.S. In Alberta it has a chiefly montane and boreal distribution. In Wagner Natural Area it occurs in relative abundance in the treed fens. It can be seen along the Marl Pond Trail particularly in the black spruce forest just northwest of the first large fen (entering the Trail from the south).

A close relative of beautiful sedge is *Carex concinnoides*, low northern sedge, a similar but more robust plant found chiefly and uncommonly in the mountains in Alberta. Its perigynia often have four stigmas that are much longer than those of *C. concinna*. Another relative is *Carex richardsonii*, Richardson's sedge, which is relatively common on sandy soils locally.

Beautiful Sedge Sedge Family



Herbarium specimen showing whole plant



Cluster of spikelets on flowering stalk, showing thin terminal male spikelet and 3 female spikelets with perigynia developing into fruits.