Purple Tansy

(Phacelia tanacetifolia)

by Peter Armitage, Portland, Newfoundland
(guest column)

I'm originally a BC boy, raised in Richmond, with connections to Vernon where my late stepfather Dave Laidman was a beekeeper. Dave got his honey extracted by beekeeping pioneer Leo Fuhr. I remember well the wonderful odours of Mr. Fuhr's honey house, and marvelling at his efforts to seal every crack and cranny around his doors and windows in order to keep *Apis m*. robbers away from the honey. I was too young to participate, but apparently Mr. Fuhr, my stepfather, and other local beekeepers would socialize over honey tasting and wine, which could produce some wicked hangovers a day later, if one over-indulged.

My stepfather kept a dozen or so colonies near his home in a small apiary at the end of Brooks Lane on Okanagan Landing, and may also have produced monofloral honey by placing some colonies in fireweed meadows at more remote locations.

Those childhood encounters with honey bees and honey were formative, because five decades later I find myself beekeeping on the east side of the country, in Newfoundland. Here, our biggest challenge is not necessarily pathogens and pests (we are free of varroa, tracheal mites, small hive beetles, wax moths and several other nasties), but an extremely late spring. In fact, we don't really have a spring. What passes for such is some other season, between winter and summer, that zigzags erratically with unpredictable and frequently cool, wet weather from May to the end of June. Snowfall on Victoria Day weekend comes as no surprise! Such weather is certainly not conducive to mating our virgin queens, which is why it's virtually impossible to purchase a nuc here before the middle of July. It's a bit different than the Lower Mainland of BC, eh?

Forage in Newfoundland:

Our primary forage species, according to seasonal progression from theoretical "spring" in early April to frost in October, are alder and pussy willow, mountain and red maple, dandelion, white clover, fireweed, goldenrod and bog aster. Where my apiary is located in Portland, Bonavista Bay, many of these species are found exclusively on disturbed landscapes such as roadside margins, lawns and gardens, and woodland areas that have been opened up as a result of domestic firewood harvesting. Otherwise, my apiary is surrounded by black spruce and balsam fir boreal forest with little food of value to my honey bees. That's why I've been interested in augmenting the "wild" forage with other species that are easy to plant, easy to maintain, and provide maximum nectar and pollen value to the bees.

Jane Ramsay's "Plants for Beekeeping in Canada and the Northern USA" (2015) has been an extremely useful resource with respect to researching "exotic" species that could be introduced to my area.[1] Jane's reference book is a concise compilation of information regarding nectar and pollen sources for honey bees, gleaned from the University of Cambridge's Botanical Garden Library as well as from other sources. Having scoured its pages relentlessly, I chose several non-invasive experiments both for my garden as well as for "guerrilla-seeding" in the neighbourhood. They include bird's foot trefoil (*Lotus corniculatus*), hyssop (*Hyssopus officinalis)*, lavender (*Lavandula angustifolia*), purple tansy (*Phacelia tanacetifolia*), and white clover (*Trifolium repens*). Of these, the purple tansy (henceforth "phacelia" or "tansy") is my star forage species in terms of the ease with which it can be propagated, its lengthy flowering time and attractiveness to bees.

Phacelia is an annual member of the Hydrophyllaceae family. Ramsay reports that phacelia blooms in 6-8 weeks from seed, which is true to my experience. However, I got many more weeks of phacelia flower than the 4-6 weeks that she reports. I got 13-14 weeks of perpetual flower from this plant, and during most of this time it was well populated by honey bees and various bumblebee species. There were numerous days when my phacelia hummed loudly with hundreds of honey bees and dozens of bumblebees; a sea of purple flowers completely covered with bees!

I prepared two beds exclusively for phacelia in 2016, one about 8 m^2 in size, the other 4 m^2. I broadcast seeded the first bed on June 4th and it started to flower on July 18th. As summer progressed into fall, both beds were surrounded by a variety of forage species competing for the bees' attention, including white clover, raspberry, fireweed, goldenrod, and nasturtium. Throughout the summer and early fall, my honey bees clearly favoured the phacelia, with the white clover a close second in popularity, if density of bees per square metre is anything to go by. My forage notes report that on August 10th, "Honey and bumble bees working purple tansy like crazy." On Sept. 28th I wrote, "High temp. today, 12°C at 4:36 pm with sunshine & calm. Noted lots of ladies in the tansy." On Oct. 1st, I added, "The purple tansy...that started to flower on 18 July is still in flower with lots of ladies in it this afternoon." The phacelia was still in flower on Oct. 24th along with the hyssop, mustard, bachelor buttons, marigolds, and broccoli. It took frost on Oct. 19th (low -1.3°C) and on Oct. 21st (low -2.0°C) but was finally hammered by a prolonged -3.1° C frost early on the morning of Oct. 29th.

International Reputation:

None of this will come as a surprise to beekeepers already familiar with the plant. As far back as 1902, the British Bee Journal editor Thomas William Cowan noted that "*Phacelia tanacetifolia* is literally covered with bees from morning till night. The species was introduced into Europe from California in 1832, and is called tanacetifolia (tansy-leaved) from the resemblance of its leaves to those of tansy. It is an annual with bluish pink feet. It is grown in Europe as a bee plant for its nectar, and is the only one which produces an appreciable quantity of it."[2]

In their assessment of phacelia as a food plant for honey and bumblebees in the UK, Williams and Christian (1991) noted that, "Peak flower densities exceeded 2,000, 4,000 and 3,000 flowers/m^2 for the early, mid- and late-sown plots respectively. Both honey bees (*Apis mellifera*) and bumblebees (*Bombus spp*. and *Psithyrus spp*.) foraged on the flowers from early July until late October. At peak bee density > 20 bees/m^2 were present."[3]

The Author

More recently, Sally Bucknall (2013) writes, "If you have the space and are keen to provide your bees with good home-grown forage you can make a small area for *Phacelia tanacetifolia*, a top nectar plant especially visited by honey bees and short-tongued bumblebees and useful as a good source of nectar that will continue to flower until the first frosts. It has an unusual flower; the stamens are longer than the petals so bees hover over the flowers to find a position from which they can collect nectar. Also it has interestingly dark blue pollen."[4]

Writing about the most important melliferous plants in Hungary, Farkas and Zajácz (2007) say that, "The great advantage of phacelia is that it provides food for bees even under extreme conditions, such as dry, hot as well as wet and cool weather. It emits such an overpowering nectar scent that bees cannot resist, and visit the flowers from early morning to late evening in great numbers…collecting both nectar and pollen…even in great heat."[5]

Closer to home, Tibor Szabo (1982) experimented with phacelia during his time at the Agriculture Canada Research Station in Beaverlodge, Alberta. He observed, "It grows in sunny locations in any kind of soil, however, the best growing was obtained in humus-rich sandy soil. Phacelia cannot compete with grasses and other plants and therefore does not become a weed problem."[6]

Value for Honey Bees:

Ramsay's sources point to a honey potential of more than 201 kg/ha (lbs/acre) for phacelia. She notes that honey produced from this plant is light green, and is classed as white to light amber, but it granulates rapidly. Nectar is secreted at temperatures between 10 and 31° C, with the best secretion between 16 and 24° C when the relative humidity is 55-70%. The sugar concentration in the nectar is 16-52% depending on precipitation (higher concentrations in dry conditions). The flowers produce dark blue to dull brown pollen in abundance.

In their evaluation of the quality of several single pollen diets and one pollen substitute for honey bees, Pernal and Currie (2000) determined that phacelia pollen "contained the highest level of crude protein (28.1%) of all natural pollen diets."[7]

Given the immense popularity of phacelia in Europe and the U.S. for more than a century, I find it curious that more of my fellow beekeepers are not persuaded about the merits of planting it in large quantities wherever possible. How many of you have taken note of your own provincial apiculturist's recommendations regarding summer nectar and floral sources, where phacelia is celebrated as a "profuse nectar producer" and "highly attractive to all pollinators"?[8] I, for one, will be planting much more of it this spring. What remains to be seen is how well it reseeds and whether it will prosper when guerrilla-seeded on landscapes where I am unable to prepare the ground and easily control the grasses and other non-melliferous species that take hold there. ❀

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Notes

1. Ramsay, Jane. Plants for Beekeeping in Canada and the Northern USA. Victoria, BC: Printorium Bookworks, 2015.
2. Cowan, Thomas William. Gleanings in Bee-Culture. cited in American Bee Journal. Nov. 20, p.750-751.
3. Williams, Ingrid H. and D.G. Christian (1991). Observations on Phacelia tanacetifolia Bentham (Hydriophyllaceae) as a food plant for honey bees and bumble bees. Journal of Apicultural Research. 30(1): 3-12.
4. Bucknall, Sally. 2013. Flower Power. BBKA News. No. 213, June. p.9.
5. Farkas, Ágnes and Edit Zajácz (2007). "Nectar Production for the Hungarian Honey Industry." The European Journal of Plant Science and Biotechnology. 1(2): 125-151.
6. Szabo, Tibor I. 1982. "Phacelia tanacetifolia as a honey plant." *Canadian Beekeeping*. 9(9): 151.
7. Pernal,Stephen F. and Robert W. Currie. 2000 "Pollen quality of fresh and 1-year-old single pollen diets for worker honey bees (Apis mellifera L.). Apidologie. 31: 387 - 409.
8. Government of British Columbia (2011). Summer Nectar and Floral Sources. Ministry of Agriculture. Apiculture Bulletin #905.