

Ants – Why The Attraction?

By Ed Herbst

'In fact ants are little chemical factories, continuously producing an array of substances, called pheromones, that serve as the ants' language. Through these pheromones the ants can convey messages ranging from the location of food to the presence of danger. They use pheromones as well to orchestrate social behaviours as diverse as tending the young, grooming the queen, marking their territory, and mating.' Bert Holldobler, *Ways of The Ant*, National Geographic, June, 1984

References to ants in fly fishing literature date from Walton's time with Charles Cotton giving dressings for an imitation in the 1676 edition of *The Compleat Angler*.

Subsequently, other British fly fishing authors, including Alfred Ronalds(1836), G.P.R. Pulman (1841), Michael Theakston (1853) and Frederick Halford (1913) all listed ant patterns in their books. What is relevant here, for our purposes, is that ants are far more prolific in sub equatorial Africa then they are in the cold climes of Britain.

That ants and their nests have the pungent, acidic odour traditionally associated with urinals has been recognised in literature for centuries and it led to the medieval name for ants – “pismires”.

*He is as crabbed as an old pismire,
Though he has everything he can desire.*

-Chaucer (c.1342-1400), Canterbury Tales, 1386-1400, The Summoner's Tale

Why, look you, I am whipp'd and scourged with rods, Nettled and stung with pismires, when I hear of this vile politician, Bolingbroke.

-Hotspur, in Shakespeare (1564-1616), Henry IV, 1598, part 1, Act 1, Scene 3

But it is only in the last seventy odd years that anglers have sought to attribute to formic acid the trout's attraction to ants, an attraction which they have empirically proven through countless successes with flies representing this insect.

It was Edward Ringwood Hewitt, one America's most significant fly fishing innovators, who first publicised the fact in

his book, [*A Trout and Salmon Fisherman for Seventy five Years*](#)
(Charles Scribner, 1948)

'One evening, on the Neversink, we noticed a great rise of trout in the large pool at the Big Bend. They were located where the current runs along the ledge. My son and I fished for about two hours without hooking a single one. We tried all patterns of flies with no results. There were large numbers of small black flies in the air, sometimes even clouds of them, as well as other insects, and even larger flies.

'Finally, one of these clouds of black flies came around my head, and as I opened my mouth to speak one or two of them got in it, and to my surprise they tasted quite bitter. These were small flying ants, and were bitter with formic acid. The fish were evidently taking these small flies on account of this taste, and would not touch anything larger until these insects had all disappeared.

'I took some No. 18 flies and cut down the wings to make them about the size of the flying ants, and at once began to get fish. We took a dozen good-sized ones in a little while.'

Not everyone has bought into this theory

'For some reason trout seem to find ants particularly attractive. It can't be their size, surely; they hardly seem big enough to bother about. It was left to E. R. Hewitt to suggest that it is the tartness of their taste that appeals. He put forward the theory that the taste of their formic acid content is strongly attractive, and, being a chap to put his mouth where his money is, he ate some to prove it. This must be one of the most pointless angling experiments I can imagine. Hewitt assumed trout to have the same degree of taste that humans enjoy, and that because a taste is tart it is pleasurable to trout. Other fly fishers have followed Hewitt's example only to find ants tasteless. I am an angler who likes to put theories into practice but I stop short at tasting flies to see if trout might like them. Mayflies, caddis, caterpillars, dragonflies are all available - why did Hewitt stop at ants? The principal reason why trout eat ants is that they are both available and abundant.' John Roberts, [*To Rise a Trout*](#), 1988.

Research in the past few decades has shown however that ants, unlike caterpillars, dragonflies et al, communicate through a complex mix of extremely potent chemicals. Lacking both voice or hearing, they use these chemicals in a variety of ways; to create trails for others to follow, to recruit others when there is a need to attack and subdue prey, to raise the alarm when an attack from another colony is imminent and to threaten the

attackers etc. No less than five glands produce these pheromones. Starting from the head there is a mandibular gland that exudes alarm odours as does the Dufour's gland in the abdomen. Also in the abdomen are a poison gland that produces formic acid and other venoms, a sternal gland that summons workers from nearby and a rectal gland that secretes trail-marking odours.

These chemicals are extremely potent as research at Cornell University has found – so potent that the possibility of using them as a cure for Alzheimer's disease is now being researched:

'Gas chromatographic and mass spectrometric analyses in the Cornell laboratory identified four components in the multipurpose fluid from the ants' poison glands. They are N-isopentyl-2-phenylethylamine, a key compound never before identified from nature; anabaseine (3,4,5,6-tetrahydro-2,3'-bipyridine); anabasine [3-(2-piperidinyl)pyridine]; and a fourth chemical never before found in ants, 2,3'-bipyridyl.'

Ants can detect just a few parts of their pheromone in a billion parts of air but such sensitivity is not unique in nature. Salmon and trout can detect similarly minute levels of chemicals in the

water and this is shown by the ability of salmon and sea run trout to return to their natal rivers.

After Hewitt's widely published and discussed hypothesis that trout are attracted to ants because of their formic acid content, it was an article 'Anting the Hatch' in the July /October, 1982 issue of the American magazine, *Fly Fisherman* that alerted fly fishers to the fact that trout that are locked onto a hatch of mayflies or caddis will abandon this selective feeding if an ant – or an imitation thereof – becomes available.

Miyata who had had a Phd. in zoology and was a fellow of the Smithsonian Institute, drowned while fishing the Big Horn River in Montana on October 14, 1983 but his phrase, 'Anting the Hatch' not only endures but helps bolster the confidence of former sceptics like myself.

Ants have quite a high calorific value compared to other insects. In their book, [*Lake Fishing With A Fly*](#), (Frank Amato Publications, 1984), Ron Cordes and Randall Kaufmann provide the following table based on a study at Castle Lake in northern California.

Food Organism	Number per 1000 calories
Dragonfly nymphs	15

Beetles	26
Ants	70
Damselfly nymphs	85
Snails	229
Midge larvae/pupae	759
Caddis larvae	1000

In addition to this, I believe the reason why trout find ants almost irresistible is a Pavlovian linkage between a very distinct search image and the powerful chemicals that ants contain and that trout can discern. Unlike a beetle, for example, which is just a blob, often without distinct legs or antennae, an ant has an abdomen more than four times bigger than its head, a thin waist connecting the two, six long legs and equally long antennae.

Ants have reflective exoskeletons and bodies covered with tiny hairs that capture air bubbles.

Miyata wrote of catching trout on his dubbed fur ant pattern at midnight and when the river banks were covered in snow and ants had been hibernating for months. He wrote of catching sea run browns in estuaries where their exposure to ants had been minimal. Furthermore, Leigh Perkins, the man who made Orvis a household name in America, uses nothing but a #14 red fur ant

during a hatch of the diminutive *Trico* mayflies because he has proven on many, many occasions that it works.

The fact that trout will move inordinate distances, several feet, to take an ant during blanket hatches of aquatic insects is a matter of repeated record. In England, Tom Saville wrote:

'I've seen boats drive right through a shoal of trout rising to ants, and the fish have continued to rise in the wake, so intense was their desire to feed.' ([Reservoir Fishing With Tom Saville](#), 1991)

But it was a reference in a Tasmanian book that, for me, best captured the extraordinary power that ant patterns have to tempt, the most fastidious and, in this case, the most sated trout and it is this passage that I leave you to contemplate along with the advice contained in Proverbs, Chapter Six verse Six:

'He cast the small ant pattern onto fast water in the neck above the deep Willow Pool and found himself fast to a good fish of about a kilogram which took the little fly ravenously. The trout was duly landed and when cleaned was found to contain a fully grown field mouse – and yet it could not resist that tiny ant.'

Tony Ritchie, [*Dry Fly-Fishing for Trout*](#). Kangaroo Press, 1994.