



THE LIFE AND DEATH OF A FLAILED CORNISH HEDGE

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JULY 1972: EYE-WITNESS ACCOUNT OF THE FIRST FLAILING.

On a sunny day in July 1972 I was walking along this West Penwith lane as usual with the baby in his pram and revelling in the masses of wild flowers in the hedges. They were buzzing and humming with countless bees and hoverflies, jingling with grasshoppers and fluttering with butterflies all the way, while birds and their young ones were busily foraging. This was how the Cornish hedges had always been in summer, teeming with happy life, full of the colour and activity of nature. I was blissfully unaware that it was the last moment I was seeing it all, that a reign of terror was beginning for the wildlife I loved so dearly, and that my child was never to know the glorious annual abundance and diversity of flowers and creatures in the hedges that we then took for granted, this joyful and exquisite sight for the people of Cornwall and the visitors to the county. Time and again, the word you would hear used in describing it was “Paradise”.

Hearing a strange noise I stopped the pram, called the dog to heel and looked ahead. It sounded like a tractor but with a peculiar whirring, smashing, clattering, destructive sound that was to become all too familiar in the years to come. Up the road came a County Highways tractor with a shiny new machine of a kind I had never seen before. As it lifted to avoid a telephone pole stay I glimpsed enough to understand the way it worked, with a long box-arm full of whirling flails. I stood there appalled as it approached. It was sucking into its maw the beautiful tide of flowers and busy insects, smashing everything under it and leaving behind nothing but an empty, silent green bank and a thick mess like coarse lawn-mowings. I watched in disbelief as this nightmare came on towards me. I could clearly see the dancing life in front of it and the stillness of death behind. Looking to see whether anything escaped by flying upward or outward, I saw only one large white butterfly achieve it. Everything else was beaten down together. As the machine passed me I could see that only the birds fled its approach.



DESTROYED. Bumblebee (Bombus terrestris) piercing red campion flower at base to get at the nectar. Killed by the flail.

I crossed the road and picked up a lump of the green mess, shaking it apart in vain hope of living things emerging. A shower of little crushed pieces fell, with the green fragments, that could hardly be recognised but for an insect wing here or a tiny leg or head there. Scattered all along the road at my feet was a mass of torn and shredded greenery and flower-heads, thickly

strewn with the soft bodies of moths, many cut in half yet still pulsing, a confetti of little bright wings, crushed beetles, dead hoverflies and fragmented bees, a smashed dismembered frog. Of the scores of grasshoppers that a few moments before had been flicking in front of my dog as he nosed his way along beside the verge, not one could be seen alive, for all their ability to leap. All the myriads of little flying and creeping things that had been busy or sleeping among the flowers and leaves were gone. Their nests and cocoons and young that had been on nearly every plant were destroyed. The machine had scraped along the stone face of the hedge, mashing everything on it.

I wanted to stop the man for him to see the carnage, but by now he was too far ahead, going a little too fast. I couldn't run fast enough with the pram, and without it by the time my not very good legs had managed to overtake the tractor and flag him down I would have left the baby far behind.

I walked in the wake of the machine all the way home, stupefied, trying to avoid stepping on the corpses; little bloody pieces of voles and shrews, disembowelled toads, crushed silvery bits of slow-worms. Watching the massacre unroll as the destroyer disappeared in the distance, I was shocked, stunned and sickened. I am not one for being sensational, but this is a factual statement and milder words would not be true. Even having seen it with my own eyes I could not begin to estimate the death toll, but along that mile of road alone it amounted to hundreds of species and many thousands of individuals. It was mass genocide, on an astronomical scale.

Each small handful of the smashed green stuff, which I kept picking up to see, contained pulverised wild flowers, half a dozen or more pieces of snails, insects, beetles, moths, pulped caterpillars, butterfly wings, and now and then the tiny paw or tail of a field mouse or a shrew; and how many unrecognisable remains and microscopic fragments there was no way of telling with the naked eye. Anything that remained more or less in one piece as it came through the flails was all crushed askew. It seemed impossible that so much lovely, vibrant life could have been so instantaneously wiped out, reduced to this pathetic debris in an indistinguishable green mess. The overriding thought in my shattered mind was "*What on earth do they think they are doing?*" Until this time the hedges had been trimmed with a reciprocating scythe, popularly known as a finger-bar cutter, mainly during winter, with some handwork from the road-man cutting out woody growth and bramble whips from the hedge-side - an excellent and successful method, as the great diversity of flowers and wild creatures along the roadsides proved.

I rang up the county council and told them what I had seen. I was passed from pillar to post, and they said that no-one else had complained. Later, when neighbours met and compared notes, we knew that this was not true, as we had all been told the same. People complained all right. They telephoned, they wrote letters, and they were fobbed off or received no reply. They stood in front of the tractors and harangued the drivers, they wrote to the newspapers and contacted their member of parliament, but nothing had any effect. I became used to seeing ordinary sane adults in tears of anguish and distraught with frustration and fury every time the council flails went by. One perfectly sensible, down-to-earth woman said to me, "I feel as if a great joy has been struck dead in my heart." Another said, with too much clear-sighted truth, "The hedges will never recover from this."



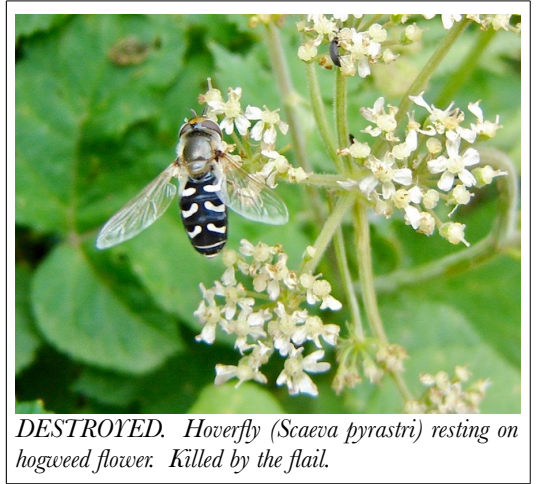
DESTROYED. Short-tailed vole. Killed by the flail. (Watercolour).



DESTROYED. Drinker moth caterpillar resting on gorse stem. Killed by the flail.

Nobody ever succeeded in getting to the individual public servant who actually ordered the job to be done. Nobody received any explanation why the council had changed its hedge-trimming policy and equipment. Nobody succeeded in getting anyone to come out to view the devastation. Nobody could find an answer to that anguished question, “*What on earth do they think they are doing?*” There was no reason to it at all. They were scalping hedges and eliminating wildlife wholesale with no regard to the fact that the growth was not affecting road use or visibility at all.

With the wisdom of hindsight I wish I had parcelled up big bags of the poor little bits of bodies and personally emptied them on to some influential desks. By the time we realised no-one was going to listen, it was too late. When the flail came round the following year there were scarcely any bits of bodies to parcel up, because so little life had survived the first onslaught.



DESTROYED. Hoverfly (Scaeva pyrastris) resting on hogweed flower. Killed by the flail.

All I could do, after repeatedly trying to speak to the Council, lobbying my MP, and



DESTROYED. Cardinal beetle on nettle leaf. Killed by the flail.

writing to the newspapers, was to begin monitoring the mile of hedges I knew so well, and studying the effects of the flailing. I assumed that the professional naturalists would all be doing the same, and that my work might be a small contribution towards stopping the destruction. It was only as time went by that I began to receive hints that my record was possibly unique, due to my particular circumstances having aided my observations, and I realised I had to make it public. Early attempts met with the astounding response that environmentalists were not concerned about the use of the flail. They had collected no factual evidence and were unqualified to endorse my findings.

I began to discover that, incredibly enough to one who had been enthralled since early childhood by the amazing diversity and abundance of life in Cornish hedges, no naturalist seemed ever to have made any study of them. The 'experts' apparently had no idea of the life that was there, or of what was happening to it. I found myself having to wait until the damage was obvious to the most casual eye before there might be any hope of getting anything done about it. The regular storm of anger from the general public, year after year, was simply ignored. At every opportunity, for fifty years, at the risk of appearing to be a crank of one idea, I and others like me have steadily damned the flail, but nobody in the corridors of power has listened.

It is long past time for them to listen, now.

1960 - 1972: THE HEDGE AS IT WAS.

From 1960 onwards to the 1990s, having no car I travelled this mile of lane on foot, cycling, or riding a small unshod pony - an excellent way to see nature close to. In 1970-71 I listed the hedge species, intending to make a study for my own pleasure, as I was now walking this mile of lane four times every day. By this chance, although the list was not quite finished, I had

irreplaceable information when overtaken by the sudden devastation of hedges I had known intimately for over ten years.

From 1972 I recorded the effects of the flailing on these hedges, making in all, to date, an informal but detailed study of an individual Cornish roadside hedge over half a century, throughout the flail years and before. I also observed many other hedges and verges in Cornwall and other parts of Britain. Until that date (1972), despite Cornwall's rich heritage of habitats from rugged granite cliff to lush woodland and from heath to marsh and bog, it is certain that the majority of the county's wildlife was in the network of hedges.



DESTROYED. Slug *Arion ater* on foxglove. Killed by the flail.

Due to their construction and antiquity, the hedges contained the elements and remnants of these varied habitat features and at that date could be estimated at well over 50,000 acres in extent. A Cornish hedge typically almost triples its footprint in available wildlife space, and its stone and earth structure provides a far richer environment and wider variety of niches and mimic habitats than the equivalent area of level ground. The amazing concentration of species to be seen in hedges at that time and the extent of loss and local extinction caused directly by flailing show that the wildlife they harboured was indeed the bulk of the county's diverse populations, surviving in unbroken succession from prehistoric times when the first Cornish hedges were built.

Description of the hedge.

This lane hedge happens to be typical of the majority of Cornwall's roadside hedges, in character midway between the lush wooded valleys and the exposed hilltops. The lane runs roughly east to west, curving from a south-easterly orientation at one end to south-westerly at the other, and rises from 120m above sea level to 140m, then falls again to 120m. At that time, all the bordering fields along the lane were in permanent pasture/hay for dairy and beef cattle. In the valley near the eastern end is a mixed woodland. At the western end the land is more open, taken in originally from typical moorland, with nearby swampy bottoms overgrown with willow. The hedge was looked at along each side of approximately one mile of this lane, equivalent to studying both sides of a mile of hedge with roughly north/south aspects.

The hedges along this lane are of the traditional type called a Cornish hedge, that is of



DESTROYED. Frogghopper nymph on nettle. Killed by the flail.

stone construction with a core of earth, populated mainly with naturally-generated, self-sustaining species surviving from the pre-farming ages. The hedge height varies with the undulations of the road, from 2 or 3 feet high to 5 or 6 feet, in places massively built where the lane is lower than the field behind. The condition of the hedge structure along both sides of the mile of lane was excellent, the stones being solidly tied in by the healthy green growth. In the narrower parts of the lane this natural growth discouraged drivers from trying to pass other traffic inappropriately and so kept vehicles from

striking the hedge face. During the previous twelve years of walking and cycling this road, I had never seen any loose hedge-stone fallen on the highway. These were well-built hedges with skilfully-coursed and interlocked stone, of the type that will stand for a couple of hundred years, often far longer, before they begin to need repair.

As such roadside hedges in Cornwall quite often do, it includes a short section (70 yards long) that had once bounded the garden of a cottage and still contained a number of introduced plants. On top of the hedges on both sides of the road were healthy bushes of naturally-generated hawthorn, blackthorn and gorse, with some probably planted broom, holly, elder and native privet, entwined here and there with ivy, honeysuckle and wild roses; hardly a gap in these bushes anywhere except on the highest part of the road, towards the middle of the mile, where the old cottage used to stand. Connected with this site there is a silted-up pond, which contained some later fly-tipped garden introductions. This ex-cottage and pond section provided useful data on the fate of small populations and the spread of rampant aliens when the flail altered the balance of growth.



DESTROYED. Hedge brown butterfly on blackthorn. Killed by the flail.

Pre-flail flora in the mile of lane surveyed.

To those more accustomed to the English hedgerow, the presence of 186 flowering species may seem to indicate an unusually rich and varied flora, but similar numbers were seen along many Cornish lanes of this type at that time. The number comprises the original unfinished list of 152 plus some remembered species that later reappeared. It excludes a further eight unconfirmed flowering species, believed present at the time but not recorded and not seen since. Grasses, flowerless plants and woody species are recorded separately.

This listing confirmed observations going back to 1960 and showed no changes during that time. The floral populations were remarkably constant, only with grasses growing more lushly in the wetter years. The more prolific were a) bluebell, red campion, herb robert, greater stitchwort, foxglove, common sorrel, ribwort plantain and creeping buttercup; b) betony, cat's-ear, sheep's-bit scabious, wild golden rod, umbellate hawkweed, pignut, tormentil, English stonecrop, woodsage, yarrow and wall pennywort (navelwort); c) common violet, germander speedwell, greater bird's-foot trefoil, early purple orchid, narrow-leaved vetch*, tufted vetch, bush vetch,



DESTROYED. Orb-weaving diadem spider. Killed by the flail.

meadow vetchling, common ramping fumitory, tall ramping fumitory and western fumitory. All of these grew more or less all over the hedge all along the mile, though towards the eastern end and the woods the plants in the first group were most abundant, towards the western exposed end the middle group predominated, while the violets, speedwell, trefoil, orchids, vetches and fumitories were in strength all the way along. There was invariably a fine annual display of foxgloves, especially along one half-mile of the north-facing hedge which was a continuous mass of these flowers, all fine

specimens from three to six feet high. With the added height of the hedge, they formed a magnificent sight, like a purple frieze above the mixed colours of the lower-growing flowers. The north-facing hedge tended towards woodland-edge species, while more heath plants grew on the sunnier south-facing side of the lane. The entire length of the hedge on both sides of the road was a tapestry of colours from April through to October, when autumn berries and seed-heads began to take over. The joy, as with other Cornish hedges, was not only in the variety of species but in the quantities of each kind, reappearing year after year and many of them blooming throughout winter, especially red campion, hogweed and violets.



DESTROYED. Beetle Oedemera nobilis (and a bug) on hedge bindweed flower. Killed by the flail.

* **Note.** For ease of reading, Latin names are not used in the diary (a full list of species is appended at the end). Therefore, for clarity the old name of narrow-leaved vetch is used for *Vicia sativa* ssp *nigra*, to differentiate from common vetch *Vicia sativa* ssp *sativa*, which latter was not so common in this area.

Ferns, grasses and mosses.

The mingled masses of flowers and foliage of so many kinds along the mile of lane, on both sides of the road, showed that these were typical traditionally-maintained Cornish hedges. The hedge-top bushes were allowed to grow in a natural outline, only pruned selectively now and then to prevent wind-rock. The winter trim of the hedge-bank sides to keep them clear of woody species left the tight, healthy growth of green herbaceous leaves and tussocks and the crowns of ferns untouched. It died down and regenerated naturally in season and was never trimmed. As a result there were abundant ferns in the mile, of eight different species, many of them fine specimens. Three dozen species of grasses were disposed among the flowers in a kind of filigree embroidery which was one of the charms of the Cornish hedge-side and gave it somewhat the look of an ancient flower meadow, only with many more species and far greater masses of flowers - roughly 80% wild flowers to 20% grasses, the reverse of a meadow's average proportion. On a misty day the dainty grasses with their delicate structure and soft colours were exquisite as a foil to the flowers. None of these grasses was invasive, nor were the bracken, ivy, docks, nettles, cow parsley or hogweed, though these were modestly present. Ivy, which dislikes competition, struggled for existence on the hedge-bank side, single stems threading the other growth with difficulty; small-leaved, red-tinged and starved on the higher, drier part of the south-facing hedge, sparsely green-leaved at the foot. It only showed up here and there under the shadier bushes on the north-facing side, on one or two of the gateposts and where it grew up here and there into a bush on the hedge-top. At one place where a large boulder bulged out of the hedge-face, a narrow fringe of ivy could be seen around it.



DESTROYED. Cocoon woven on tip of gorse. Killed by the flail.

All along the hedge were many mosses, most of them green all the year

round, growing on stone, earth and bark. Frequently they formed mingled communities of several species co-existing on one stone. Their character changed from woodland species on bark and shady soil to heath mosses that made big cushions on the hedge tops as the lane became more exposed, with some wet-loving species around the old pond (and later at the foot of the hedge along the ditch which was dug as a soak-away when the pond flooded across the road in the winter of 1976-77). Not being equipped at that time to identify accurately mosses and some of the grasses, lists of these have been compiled from memory and from later studies; they only include species that are definitely known to have been there, so must be taken as minimal numbers. The mosses would have been in the region of 80 well-known species and perhaps a couple of dozen less common kinds.



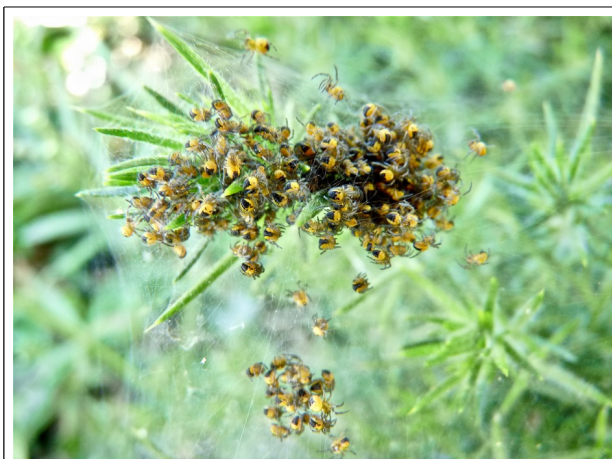
DESTROYED. Carder bee (*Bombus pascuorum*) on knapweed flower. Killed by the flail.

Along the exposed south-facing side a certain amount of the stone construction was visible, encrusted with lichens among the mosses on the drier, upper part of the hedge-bank.

Long-vanished cottage and pond.

The former presence of this cottage, shown clearly in the hedge flora where species introduced by the cottager still grew, was confirmed when, during farming changes of the 1980s, the pasture field adjoining the hedge was ploughed. Inside the gate the shape of the cottage foundations emerged in the soil, with a litter of broken pottery, clay pipes, buttons and fragments of lime-mortar, cow-hair cob and plaster, all typical 18th or early 19th century domestic debris. The building and its garden had gone by 1842 when the local title map was drawn.

The longer ago a cottage was abandoned, the more of the introduced species were likely to have been flowers taken from the wild rather than garden plants. There were 30 species here that grew nowhere else in the lane hedge, some probably the result of the period of arable cultivations at the cottage, others, such as the unusual vetches and other plants not found in the immediate vicinity, would have been brought home from visits to the woods or the sea coast. Burnet rose, buddleia, broom, elder and native privet had been planted on the cottage hedge, as



DESTROYED. Nest of infant diadem spiders on tips of gorse. Killed by the flail.

also at the house at one end of the mile where plants had evidently been given from one neighbour to another. I think I have heard that *Buddleia davidii* was not introduced to Britain before the late 19th century, after the cottage had gone. Buddleia seeds readily in Cornwall, or perhaps a neighbour might have used the abandoned garden or tended the hedge flowers for a time, making later, ill-advised additions to the planting with montbretia, pendulous sedge and three-cornered leek, the unwelcome surplus so often turned out of gardens into hedges. These seem incompatible with the taste that stocked

this hedge with treasures such as the wood vetch, white violet, lady's bedstraw, heath-spotted orchid and wild strawberry.

At one end of the cottage site, in a set-back kink in the hedge where two fields join, there was a derelict roadside pond, possibly an ancient dew-pond hedged around when the land was first enclosed. Growing in the water were a few clumps of what my 1970 list called "the garden escape *Polygonum cuspidatum*"; a mild entry reflecting the fact that this, though already a problem in some coastal areas, was so far not thought of as a disaster on the roadsides, being present occasionally as small stands or clumps which were seen as a nuisance by the road-man and kept in check by his selective trimming. This plant was, of course, the now dreaded Japanese knotweed, since renamed *Fallopia japonica*, which escalated into a county-wide nightmare - mainly because warnings from amateur naturalists through the 1960s were ignored. A general increase in earth-moving operations, the loss of the road-man's intelligent control and the removal of competition by the flailing soon confirmed these warnings as the knotweed began its rapid spread; but still nothing was done except by a few householders who kept it at bay, sometimes persevering until it was eradicated, by constantly cutting down the soft young growth.



DESTROYED. Hoverfly (*Eristalis arbustorum*) resting on bracken frond. Killed by the flail.



DESTROYED. Leaf mines on hogweed. Larvae killed by the flail.

The clumps in the old pond on the survey mile were undoubtedly introduced there in the usual way, by fly-tipping, which continued sporadically at the pond during the survey years. Also at this old pond were noted other aliens typical of this careless dumping: a small area of winter heliotrope about four feet across, and three small clumps of wild arum, one being of the introduced Italian arum with yellow veining, and two of a sub-species. On the cottage hedge was one clump of rosebay willowherb (once used as a garden plant), one clump of montbretia, one of pendulous sedge and a little Italian arum and three-cornered leek.

Pre-flail birds, mammals, reptiles and amphibians in the survey mile.

Unfortunately, proper records of the living creatures (beyond simple lists of those seen in the hedge) were not completed before the unexpected arrival of the flail put an end to the chance of ever doing so. The usual denizens of the countryside at that time were seen along the hedge daily. Rodents usually field mice, short-tailed voles and shrews (and many of them). Toads and frogs along the foot of the hedge in spring and summer, and common newts at the pond. The common lizard was frequently seen basking on the exposed stones towards the top of the hedge, and slow-worms had to be rescued now and then from squirming across the tarmac of the lane. They were quite often seen squashed, as were frogs very frequently. Stoats were seen hunting by day along the hedge, with foxes and badgers by night.

The list of birds seen frequenting the hedge in 1970-71 included 48 species. Those seen most frequently in the hedge were:- wren, hedge sparrow, yellowhammer, house sparrow, robin,

chaffinch, goldfinch, greenfinch, corn bunting, meadow pipit, blackbird, song thrush, starling, great tit, blue tit, coal tit. Commonly seen were:- chiff-chaff, willow warbler, pied wagtail, grey wagtail, swallow, house martin, mistle thrush, linnet, bullfinch, marsh tit, goldcrest, spotted flycatcher, skylark, green woodpecker. Commonly seen in winter were fieldfare and redwing. Occasionally seen:- long-tailed tit, whitethroat, blackcap, stonechat, sedge warbler, swift, cuckoo and nightjar, this latter heard every night in the summer hunting up and down the lane, and woodpecker and cuckoo heard frequently by day. Constantly heard but seemingly shy of the road, skylarks were seen frequently in the adjoining fields, less often perched on the roadside hedge. The larger birds frequently seen hunting along the hedge were:- rook, jackdaw, magpie, crow, buzzard, kestrel, tawny owl and less often barn owl. Typically on any one walk along the mile you would notice between roughly 40 and 100 individual birds, most of them actively foraging in the roadside hedges, with more in the flocking season. At dawn in spring as many as a dozen thrushes would be heard singing along the mile.



DESTROYED. Large skipper butterfly resting on campion leaf. Killed by the flail.

Seen nesting in the survey hedge in 1971 were:- hedge sparrow, wren, chaffinch, goldfinch, greenfinch, song-thrush, blackbird, yellowhammer, magpie. This list is not complete; no search or watch was made for nests, these were noted in passing, by chance happening to see the birds come and go to feed young. These were the last nests recorded in this roadside hedge, as in spring 1972 illness prevented observation. No birds were seen nest-keeping after the flail passed in July 1972, though the usual number of second and third broods were there the day it arrived, and nearly all destroyed.

No birds nested there during the years of specific observation of flailing effects, 1972 onwards, except one magpie pair which nested until 1979; its old site in a set-back holly bush at the eastern end of the mile was re-occupied in the mid-1990s, a few years after the severe flailing policy eased. In 2006 the first songbird nest observed in the lane hedge since 1972, a goldfinch's, was built in the then re-grown hedge-top bushes a few yards outside the western limit of the survey mile. No nests were noted after 2006, mainly due to hedge-tops being flailed horizontally.

Pre-flail butterflies in the survey mile.

Twenty-five butterfly species were noted on the wing close along the hedge, feeding, basking, mating, egg-laying, and as larvae or pupae on the bushes or herbaceous plants. They were:- hedge brown, wall brown, meadow brown, ringlet, grayling, speckled wood, small tortoiseshell, red admiral, peacock, painted lady, comma, large white, small white, green-veined white, orange-tip, large skipper, small skipper, small heath, small copper, common blue, silver-studded blue, holly blue, dark green fritillary, silver-washed fritillary, clouded yellow. These were normally abundant for their

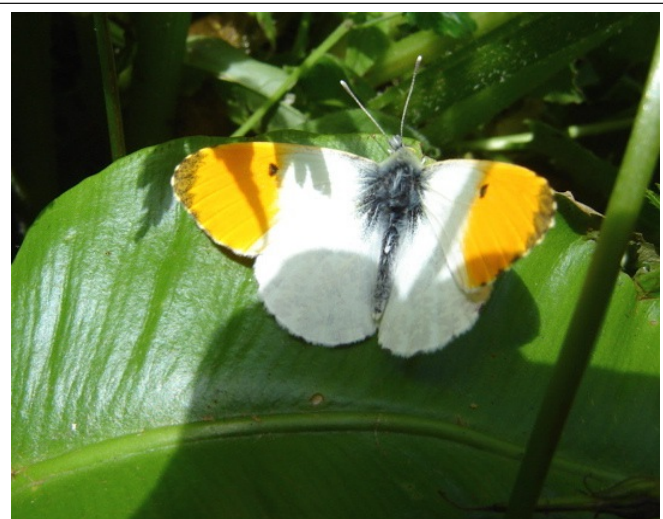


DESTROYED. Longhorn beetle on hogweed. Killed by the flail.

species and in their season every year. The orange-tip, comma, large skipper, holly blue, clouded yellow and the two fritillaries were seen less commonly, usually only one or two specimens at a time.

The silver-studded blue was regularly identified at the hedge, the impression being that its numbers would have been roughly equal with the common blue, and considerably more than the holly blue. The common blue seemed to prefer to fly in the open meadows alongside, although its eggs were laid on the greater bird's-foot trefoil growing in the hedge. When a 'blue' was seen in the hedge it was usually a silver-studded. There was a lot of gorse along the hedge-top on which it was seen to lay its eggs at the drier, more exposed western end of the survey mile where the hedges were of a strongly heathland character.

Prior to 1970 the green hairstreak was seen in the hedge and was likely to have been there in 1970-71, though not noted that year while making the list (baby interrupted hedge observations that summer). This also applies to the marsh fritillary, seen through the 1960s and early '70s frequenting a section of the lane where for about 30 yards the level top of the hedge was a mass of devil's-bit scabious, on which its larval nests and caterpillars were seen during those years. The butterfly continued to breed there until the first time the hedge-top was horizontally flailed, which wiped out the little colony. There was a colony of marsh fritillaries on a piece of undisturbed heath down in the valley about 600 yards away, and these hedge-breeding butterflies may have been long-ago outriders from here, since before the land all around was enclosed. By preserving actual fragments of the original habitat, the Cornish hedge is uniquely able to perpetuate such survivors marooned there. (This precious meadow with its masses of orchids, scabious, ivy-leaved bellflower, tormentil, milkwort, rest-harrow and other heath plants was destroyed by ploughing in the 1990s.)



DESTROYED. Orange-tip butterfly basking on hart's-tongue fern. Killed by the flail.

I am discounting one or two other butterflies breeding in the hedge at that time, which are nowadays thought of (sadly, with good reason) as rarities, such as the heath fritillary and the wood white. Although, in parts of Cornwall where their textbook sites had undergone change, these species were more often to be found (pre-flail) in hedges than otherwise and they were wiped out within two flailings, they are not germane to the issue. Fixation on rarer species can be partly to blame for ignorance as to what has happened to the common ones, by failure to recognise the primary importance of protecting the ordinary general habitat where species, rare and otherwise, can look after themselves.

The common butterflies created the usual effect seen along sunny Cornish lanes at that time, an impression that the whole face of the hedge as far as the eye could see was alive with fluttering wings of many colours, while the tarmac was starred with the red, orange and brown of basking sun-lovers, which flipped up at every few steps the walker took. It was sometimes quite difficult to avoid treading on the graylings as they lay almost comatose on their side, drunk with nectar, the greyish under-colours of the wing well-camouflaged on the surface of the road. They would lie there as if dead until you touched them with a fingertip, then lazily flutter off, only to lie down again a few feet away. It took the vibration of a car's approach to get them up more promptly, though there were always a few that failed to save themselves. Fewer butterflies were seen on the wing during some of the very wet summers of the 1960s, but by 1971 these



DESTROYED. Brown-lipped snail on bramble leaf shows why these beautiful molluscs coloured pink, yellow, chestnut or pearl and variously striped, the staple food of the song-thrush, died in millions in Cornish hedges when the flail came around.

numbers had well recovered. At the height of a normal season and on a sunny day, you would see up to three or four butterflies in every yard of hedge-bank on the south-facing side, and at least two of the larger bees.

Other insects were legion, beyond estimation. Every umbellifer flower-head carried its freight of a dozen or more flies, bugs and beetles, the best place to see a selection of their astonishing number and diversity on any sunny day in summer. Later, on damp autumn days, those same umbellifers were weighed down by the number of many-coloured snails nibbling them to dereliction.

Pre-flail moths in the survey mile.

The larger moth species were recorded in the hedge by noting what was seen when walking along the lane during the day. No beating, sweeping or trapping methods were used, so this count of 68 species at the hedge itself was a minority (less than a quarter) of those actually present, not counting micro-moths. They were seen flying by day or clinging asleep in the undergrowth, also as larvae on the variety of food plants in the hedge or wandering about in search of a place to pupate. At certain times of year the walk along this lane, if a bus were to be caught, had to be timed to allow for the rescue of dozens of jay-walking 'woolly bears' from the tarmac. Sometimes there was a squashed caterpillar every few yards, but this toll seemed to make no difference to the teeming numbers along the hedge. The survey mile gave a typical example of the abundance of moths using hedges, and I regret that I was not then able to make a complete record, nor did I realise that nobody had seriously recorded the wildlife in Cornish hedges. With the addition of the micro-moths and the less common larger moths which I saw but had no means to identify, the survey mile hedges must be estimated to have harboured at least 400 moth species, most of them breeding as well as feeding in the hedge. Few of them, apart from the very common grassland and polyphagous species, were able to pick up a living elsewhere in the immediate vicinity. Individual moths living in the hedges of the mile numbered many thousands.

During the years 1970-72 informal night counts, identifying 250 species in all, were made of the moths drawn to domestic lights at the house beside the lane at one end of the survey mile. Identifications were made by catching the moths in a glass tumbler, consulting an ordinary library of textbooks and, for ethical reasons, without killing specimens, so were limited to the externally-recognisable and mainly common species. There were a further 20 species that remained unrecognised and about a dozen or so of those identified by day along the survey hedge that did not come to the light: in all, a minimum total of around 280 larger moth species along the mile of lane. The house count slumped dramatically on the evening of the day that the lane was first flailed in July 1972, and never recovered. The nightly swarm of moths that had made it impossible to leave the windows open after dark, when the lights were on, dropped that evening from the usual several



DESTROYED. Pigmy shrew. Killed by the flail. (Watercolour).

hundred individuals invading the rooms to a few dozen - a fall easily accounted for among the thousands of dead moths I had seen in the flail-mowings along the mile that day. It was clear that most of those drawn to the lights had been living in the roadside hedge. This confirmed observations that the road hedges, trimmed annually by hand or mechanical scythe in winter, taking out the woody side-growth and leaving herbaceous growth undamaged, were far richer in wildlife, pre-flail, than internal farm hedges which were frequently grazed by livestock or were allowed to overgrow with gorse and blackthorn. The great mass of wild flowers attracting the moths to nectar and the food-plants on which they laid their eggs were mainly on the roadside face of the hedge-banks, and it was there in the foliage that most of the adult moths slept by day - 'sitting ducks' when the flail came around in July 1972.

1972 - 2019: THE DIARY OF THE FLAILED HEDGE.

July 1972. The hedges flailed for the first time. (Described in eye-witness account on page 1.)

August. The hedges are devastated. Most of the birds have disappeared. Dozens of them took refuge in the garden for a few days after the flail passed but soon dispersed across the surrounding fields and away. This garden is less than half an acre but is of the 'wild' kind; plenty of food for the normal numbers of wildlife, only not for hordes of refugees. Wren, hedge sparrow, chiff-chaff, robin and great-tit still seen now and then in hedge-top bushes hunting for small insects and mites, pied wagtail seen once or twice around the pond.

Number of yellowhammers, corn buntings and other finches severely reduced, those that are seen appear restless, not feeding, usually solitary. None of the nesting birds in evidence (should still be feeding last fledglings). For a day or two after the disaster one pair of blackbirds and one of thrushes were foraging in the mowings but then disappeared. Magpie and crow have been feasting on the bits of massacred bodies, and probably robbed these two surviving nests as cover has gone.

Bats and swallows not seen patrolling their daily beat up and down the lane since the dreadful day. They fly round and round the garden and its sycamore trees instead. There is a colony of long-eared bats in the roof numbering this year eleven adults and five young, while half a dozen pipistrelles lodge under the old slates just below one chimney. Hardly any moths or other insects to be seen along lane hedges. The swarms through windows at night reduced since that day to a few dozen, most of them undoubtedly from the garden. Have only heard the nightjar once since the flailing, instead of every night.

A few of the later perennial flowers are struggling out along the hedge-banks; betony, yarrow, golden rod, umbellate hawkweed, stunted and looking pathetic in acres of green stubble. A smattering of small insects to be seen on the wing here and there, occasionally a butterfly flies over from the other side of the hedge. There are always fewer insects in evidence on the grazed farm side of the hedges (except flies on cow pats) compared with the lane side. I should say "were", now. Cycled around for miles and saw that everywhere that invention of the devil has passed, the hedges are silent, still, and hideous. I gather it is called a flail-mower and the county council has presumably bought a whole new fleet. They appear to have adopted a technique to deal with people who ring up to complain (or else their phone system is badly out of order). They "put you through" to another department, and the line goes dead. Somebody suggests the reason why they have sent the machines out in summer is because the monster likes its victims young and tender; the tougher winter growth might bend or blunt the precious flail's blades.

This whole disaster is beyond belief, beyond reason, beyond the relief of tears.

1973

April. It is clear to see that there has been a violent shock to the hedge's life systems. Where the flail operated, growth still looks shorn and scrappy - not nearly as abundant and diverse as it should be at this time of year, nothing in flower yet. Much more grass, compared with broad-leaved herbaceous plants, than usual, and a strangely uniform appearance along hedge-banks, as if only a few weeks have passed since it was done. On top of hedge-bank where flail didn't touch, growth is normal, some greater stitchwort, cow parsley and red campion coming into flower as usual at this time, also a few dandelions and celandines along the edge of the tarmac.

No birds on the flailed part, only on hedge-top among bushes, and not many of them. A search among the stubble and roots on the hedge-bank and between the stones reveals very few invertebrates. No birds nesting this year. Only wrens appear to be doing business as usual, picking in the mossy bark of gorse bushes.

About three dozen individual stones knocked out of the hedge-face by the flail as it hit them are still lying here and there on the side of the road where I saw them fall as I followed the machine; along with dried-out fern stumps, all bigger ones torn out of the hedge bodily or broken off their roots by the flails. (Rescued all that had enough root at the time and planted them in suitable nearby places safe from flailing.) Council is clearly not going to mend the hedges. A number of people reported the damage but it was shrugged off as being of little importance, so we are putting the stones back in place with the aid of a heavy hammer. Not easy, as in wrenching them out the flails racked the stones to either side. So much for their not wanting to hurt the blades. The big boulder bulging out of the hedge is scraped white, all the pretty little mosses gone, but the ivy fringe around it is not hurt and appears quite prominent being double the width it was before.

May and June. The common and abundant species are now flowering along the hedge, but less than one-third the usual number. Individual plants are separated, with grasses in between, instead of all massed together. Flowers look sparse compared to lots along hedge-top where not flailed. The grasses that have increased are the vigorous ones, mainly couch grass, rye grass, Yorkshire fog and rough meadow grass.

The council trimmer made two passes of the flail, one above the other (three where hedge is higher), the lower pass roughly vertical and the upper pass slanting towards hedge at top. This has damaged the bushes and spoilt their appearance, smashed off on one side with the twigs torn and shattered.

Insect life very scarce, confirming massacre of breeding populations witnessed last July as first flail passed. Still no sign of birds nesting, and few foraging. The hedges are a sad sight at this normally loveliest time of year. Un-flailed hedges are as normal, but it seems that all roadsides in this area have been done. Farm and footpath hedges are seldom as flowery or full of life as the lanes were, not usually having had such care as the road-man's in removing woody scrub growth piecemeal from the hedge sides.

July. Insect numbers have risen slightly, including a few of the usual dragonflies and damselflies which come and hunt along the hedge. Not a lot for them to prey on. To the judgement of the eye barely 2 or 3% of the total number of insects have reappeared; presumably young of lucky ones that the flail missed along hedge-top, mostly small flies. Very few butterflies, perhaps about two or three dozen along the mile on sunny days this month, and about the same of grasshoppers - as many as you would normally have seen in 20 or 30 feet of this hedge. Have



FLAIL DAMAGE. Some of the deserted, flail-scarred bee-holes along the north-facing hedge of the survey mile, washed out by rains and moss-grown with time, photographed thirty years later.

seen a couple of silver-studded blues on more than one occasion, but only one silver-washed fritillary (in the garden) so far this year. Some bee-holes in hedge-bank by gateway halfway along the mile (north-facing hedge) exposed by flails cutting into earth are nearly deserted, have only seen one or two bees going in and out this year. All along the hedges the same is true - no bees noticeably going in and out of the hedge-bank earth and crevices, and very few working the flowers, no more than a couple of dozen along the mile at any time. Again, you would have seen this many in about 10 yards of hedge.

Moths at house lights about a tenth of usual number and species count nearly halved. Survivors appear to be from garden and un-flailed field hedges nearby and the sallows down the valley, mainly comprising those that don't rely on hedge plants for their food. Very few moths to be found in flailed hedges. Used to be that if you shook plants anywhere on the hedge at this time of year, several moths would flutter sleepily out; now you can walk along sweeping at greenery and find maybe one moth in six yards of hedge.

Early purple orchid, which grew in hundreds among the bluebells with seldom less than two or three orchids per yard along most of the mile (as in so many other Cornish hedges), has almost vanished - have counted only nine this year. Absent:- lady's bedstraw and wood vetch.

July (later). The flail has come round again. This is the second time the hedge has been flailed. Followed the machine and examined mowings as it passed. This time it takes about twenty handfuls to produce recognisable remains of one victim. Compared with handful count last year this suggests a loss of 99% of the living creatures as a result of the first flailing, confirming observations along the hedge. This night of the flailing the fall in numbers of moths at the house lights is barely noticeable, showing how few are left in the lane hedges since last year's flailing when the fall was around 80%. Birds have been pillaging the house garden for larvae this year.

1974

July. Numbers of nearly all flowering hedge plants this year are reduced, many drastically, and half a dozen of the perennial species are again blind (not flowering) this year. At the cottage site some have not been seen since the first flailing, so now seems the time to record the list of the cottager's plants, an interesting assemblage of the kind of flowers people were growing for pleasure or medicine before the mid 19th century in Cornish country gardens. From the number of species and their distribution it is still evident that the cottager had treated the hedge-bank like a big rockery, weeding out grasses and sowing, planting and encouraging the prettier or less common wild flowers. The following were almost certainly imported as they grow in no other hedge in the vicinity:- wild angelica, lady's bedstraw, bugle, creeping cinquefoil, daffodil (an old cultivar), spotted deadnettle, white deadnettle, eyebright, common fleabane, wild gladiolus,

greater knapweed, wall lettuce, burnet rose, pendulous sedge, sedum (*S. spurium*), wild strawberry, wild thyme, vervain, kidney vetch, wood vetch, purple sweet violet, white sweet violet, rosebay willowherb.

Also at this cottage site are a number of species that do grow in other parts of the hedge or elsewhere in the vicinity but appear to have been planted or encouraged by the people who once lived here:- hemp agrimony, white betony, bittersweet, meadow buttercup, white campion, red clover, hedgerow cranesbill, ox-eye daisy, common figwort, wild golden rod, ground ivy, heartsease (*Viola tricolor*), common hemp-nettle, wild madder, common mallow, scentless mayweed, milkmaids (*Cardamine pratensis*), heath milkwort, montbretia, mugwort, great mullein, heath spotted orchid, primrose, evening primrose, field scabious, self-heal, germander speedwell, slender speedwell, slender St John's wort, common toadflax, tufted vetch, great willowherb, hedge woundwort. There is also a beautiful variety of hogweed persisting here, with deep pink flowers and maroon stems and seeds, which may have been selected for its colour and sown here by the cottager.



LOST. Lady's Bedstraw.

Several others at the cottage site would probably have appeared here as cultivation weeds, as they do in fields and other gardens in the neighbourhood:- keeled-fruited cornsalad, field forget-me-not, common fumitory, goutweed, groundsel, black nightshade, enchanter's nightshade, field pansy, fool's parsley, common field speedwell, lesser snapdragon (weasel-snout).

At the pond are:- Italian arum, large bindweed, water figwort, cross-leaved heath, winter heliotrope, creeping jenny, water pepper, redshank (pink persicaria) and marsh woundwort, as well as the Japanese knotweed.

The beautiful wood vetch and the single plant of lady's bedstraw disappeared after the first flailing. This year common fumitory, heartsease, wall lettuce, wild madder, early purple orchid and spring vetch have gone, and there is no sign of the wild gladiolus, perhaps stunted and hidden in the increasingly heavy growth of grasses on the cottage hedge.



SPREADING. Common grasses. Encouraged by the flail at the expense of finer native species which were part of the heath ecology of flora and insects eg silver-studded blue butterfly.

This year's germination of fumitories and vetches is perhaps 10% of normal numbers, literally decimated by the loss of last year's plants before they seeded. This, as with the loss of orchids, would seem to confirm how vital each year's seeding is to maintaining these hedge flowers. The one plant of wood vetch at the old cottage site and a little spring vetch on the verge there have not replaced themselves.

Biggest population losses are among annual and biennial species, as was to be expected from prevention of seeding due to the summer trimming. Foxgloves are hit hard, nowhere more than ten in a group, and the groups spaced many feet apart. Red campion also much thinned, mainly growing on hedge top. Many perennials

affected, giving fewer and smaller flowers as the rootstock is weakened by trimming before growth matures. Some have not flowered since the first flailing.

Ferns are again reduced in numbers, badly damaged and stunted, the survivors mainly small ones with crowns protected between hedge stones. No brambles have fruited in the flailed area since 1971. Wild roses and honeysuckle dying back, as are hedge-top bushes, where flail has mangled twigs and small branches. It chewed even further into the bushes the second time and they have barely regrown at all. As they are still healthy and a normal shape on the field side, they look as if attacked by vandals all along the road side, smashed and mis-shapen, far from being properly pruned.

The only plants so far unaffected are cow parsley, bluebell, three-cornered leek, common violet, lesser celandine, wild arum and winter heliotrope. All these have their main growth and flowering season in early spring, maturing well before the flail arrives, and most are able to spread without relying solely on seeding. The knotweed is never touched by the flail and is spreading out over the edge of the pond, where some large docks and nettles are now growing; obviously the flail-mulch is enriching the verge and probably the knotweed likes this too.

Now the flail has come round again, earlier in July than it was last year.

September. The nightjar has disappeared from this area, neither seen nor heard since 1972. No whitethroat, stonechat, sedge warbler or blackcap seen along the mile this year. The long-eared bats at the house have produced only three young ones this year. These, like the nightjar, rely on the night-flying moths for their food, and used always to be seen hunting up and down along the hedges of the lane at twilight. Bats now hunt mainly round garden and over un-flailed hedges nearby. The swifts that nested in the house roof have deserted. They too used to hunt for insects up and down the lane, along with the swallows and martins which are now seen mainly over the fields and garden.

All bird numbers seen along the hedges are seriously reduced. Formerly it was hardly possible to walk fifty yards of this lane at any time without seeing at least one yellowhammer, frequently more, often flocks upwards of a dozen. Since last year only one or two yellowhammers might be seen while walking the whole mile and back, a loss of over 90% in two seasons of summer flailing. Only one sighting each of many species this year, and hardly any birds at all since the flailing in July.

No orange-tip, comma, silver-washed fritillary, dark green fritillary or common blue butterfly seen along the mile this year. Still plenty of orange-tips in the garden on the sweet rocket.

1975

June. A pattern has set in showing early disappearance of the less abundant herbaceous species, while the less resilient of the common species move rapidly to a precarious status. Serious decline in numbers even of the most prolific, especially annuals and biennials as they can no longer ripen their seed. Common sorrel and red campion now the most 'abundant', the latter reduced to considerably less than a third of its usual quantity. Birds vanish in the same way, the less common first. No spotted flycatcher or grey wagtail seen so far this year. The missing birds also disappeared from all other road hedges in the area, which are showing the same damage and degradation as the survey hedges.

Plants absent this year:- yellow bartsia, bittersweet, night-flowering catchfly, small-flowered cranesbill, red campion (white form), white campion (*Silene latifolia*), white deadnettle, wild gladiolus, hogweed (pink form), garlic mustard, field pansy, pale persicaria, kidney vetch, lesser snapdragon.

At extreme risk:- red deadnettle, purple fumitory, western fumitory, cross-leaved heath, creeping jenny, common mallow, great mullein, black mustard, fool's parsley, wild strawberry, bush vetch, common vetch, meadow vetchling, broad-leaved willowherb, wood speedwell.

The flail came round earlier again, at the end of this month.

August. And again. It is hard to imagine why. Hardly anything has grown since the June flailing - a few stunted betony, cat's ear etc amid the shorn grass. The hedges are drying out and growth slowed down. Every time the flail passes, more stones are knocked out. As the first stone is wrenched out the stones to either side are sprung, ready to catch the blow next time. We hammer them back in wherever possible but once they have been disturbed the flail usually knocks them out again. In several places three or four have gone now, and can't be put back firmly because the place they came from is too dry.

Usually if a stone falls off a Cornish hedge it is from the top course, dislodged by animals, and is relatively simple to replace, but the flail pulls them out anywhere on the hedge face so the course above begins to slump. These are antique hedges and in parts have straightened their batter (the inward curve to which the hedge side was originally built, like the sides of a lighthouse) so once the flail pulls out a stone an outward bulge can develop and others are more easily knocked out.

The fringe of ivy around the big bulgy boulder is spreading, more than doubling its width each year, so now is several feet wide either side of the boulder. Nothing but ivy is now growing within 18 inches of the boulder, only common sorrel and wall pennywort growing through for the next couple of feet, and a few other plants still struggling through at the outer edges. This is, I believe, the Irish ivy (*Hedera helix* ssp *hibernica*), which seems particularly to enjoy running over the surface and forming a thick mat as soon as it gets the chance.

On the flailed area of the hedge-bank-side there is a very noticeable increase in the



FLAIL DAMAGE. Not the original bulgy boulder but a similar, smaller one along the survey mile. Once it hosted a community of small mosses, now scraped white by the flails and surrounded by ivy.



AMONG THE MISSING. White form of red campion.

coarser common grasses, also nettles and brambles. Tough, tussock-forming grasses are now much in evidence, particularly cock's-foot. Have noted the advent of some clumps of a grass new to the hedge, not sure of its proper name (I think it's false oat grass) but I know it well, as the only grass the pony will not eat. It's the one people call 'onion couch' and from what I know of it, this new species acquired since the flailing began is hardly something to be pleased about. Probability is that the flail introduced it. Chunks of older mulch do drop out of the works now and then along with the fresh mowings, and might well contain viable fragments or

seeds of tough material like this grass.

Still no spotted flycatcher or grey wagtail seen along the mile, only in the house garden. Butterfly numbers very poor. No green-veined white, holly blue or clouded yellow seen along the survey mile this year so far. None of the previously-vanished species seen since.

1976

June. Amazing weather, cloudless and no rain since April - actually no rain, I mean, not even a single shower. Un-flailed hedges flourishing, but flailed hedges very dry already and not much growth. Bluebells less than half usual size, because flailed sooner after flowering, also feeling drought. There is now little growth to shade their roots when they need it in the height of summer. Nearly all remaining plant species steadily reducing in numbers, many seriously reduced. A few very early spring flowers are still not affected adversely, in fact some are spreading, as also are nettles and coarse grasses.

Flail came round earlier again towards end of this month. Any remaining birds disappear after the flailing except magpie and crow. These follow the flail picking up the pieces, literally. Everyone is talking about seeing more magpies the last year or two. As they are usually the only bird along the flailed part of hedges they are more noticeable, but do seem also to be increasing in number.

Still no birds nesting in the lane hedges since the flailing began. Not likely to start again now as each year things are worse for them - less cover, fewer insects, and only a few seeds along hedge-top.

September. Still no rain, not a drop since April. No growth to speak of on hedges since the June flailing, just a few struggling flowers in a mess of short dry stubble - yet the flail came round again in August. I hear a lot more people are complaining to the county council about it now. It is being done without regard for season or nature or whether the growth actually needs trimming. Certainly no sensible regard for road safety as the more shaved the hedge-banks, the faster the traffic goes, tearing round corners, because the lane looks wider than it is. We now get articulated lorries using the lane, the drivers presumably think it looks all right, then get stuck on corners. I frequently see cars in near-collisions, and often have to fling self and child, dog, bike or pony up the hedge, or if this is not possible turn and run, as big vehicles come charging along almost touching the



FLAIL DAMAGE. Centre stone knocked out by flail at first flailing, then one either side the following year, then two fell from centre of row above, followed by one more knocked from centre row and four more from row above as they slumped forward. Next stone to go, second from right, centre row. Fine earth from dehydrated core of hedge sliding out over stone at left of gap.



AMONG THE MISSING. *Scentless mayweed.*

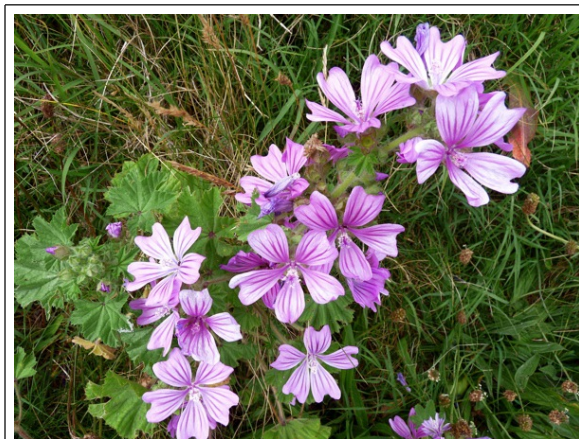
hedge either side. Since the flailing our pleasant country lane is a frightening place to walk.

Concerned by the change in pattern of road deaths. Three hedgehogs, three foxes, two badgers and four rabbits along the mile so far this year; previously only one fox or badger was killed each couple of years or so, reputedly by a person who boasted they did it deliberately. Squashed caterpillars seldom appear, as there are so few now in hedge. No toads or slow worms, squashed or otherwise, seen since 1974. Hedgehog corpses are always at eastern end of mile. I have never seen or

heard one, dead or alive, any further west along this mile of lane. Perhaps they are deterred by badger crossings or altitude and prefer to stay near woods. Not much for them to eat in road hedges now so presumably casualties were crossing road to fields. Never saw a squashed hedgehog along the mile from 1960-72, though there were plenty of them about at the eastern end then. I only saw dead ones then on the main roads, and conclude hedgehog deaths may be related to faster traffic speed.

Plant species absent this year:- white form of betony, black bryony, purple ramping fumitory, western fumitory, common mallow, scentless mayweed, black mustard, evening primrose, wild thyme, bush vetch, meadow vetchling, great willow-herb, wood speedwell. The wild thyme and also most of wood sorrel died of drought. The thyme, as one of the old cottager's plants, had survived presumably for over 130 years of summer droughts since the cottage was demolished, only to die within 4 years of flailing. The flailed hedges had already become unacceptably dry before this drought. All cool shady greenery removed and bushes now smashed too far back to cast much shadow, so effect of this year's weather has been far worse than it should have been. Creeping plants - bugle, ground ivy, speedwells etc - now suffering badly from lack of shady cover and increasing dryness, even those at foot of hedge.

At extreme risk:- agrimony, bird's-foot, scarlet pimpernel, hedge bindweed, meadow crowfoot, burdock, hybrid campion, red clover, bloody-veined dock, hedgerow cranesbill, goutweed, common hempnettle, greater knapweed, ling, heath milkwort, great mullein, field scabious, wild chervil, vervain, hedge mustard, black nightshade, enchanter's nightshade, slender St John's wort, smooth sow thistle, rough sow thistle, common toadflax.



AMONG THE MISSING. *Common mallow.*

The reasons for decline are clearly seen and confirmed as direct effects of the flailing:-

- Denial of seeding.
- Untimely removal of natural growth.
- Smothering under rotting mowings.
- Soil enrichment by mulch causing increased competition from grasses and rank weeds.
- Dryness.

Some species are more quickly reduced by one of these factors, others by another, or by more than one, but the end result is the same - they steadily, rapidly or suddenly die out. Whether my 'absent' classification means permanently lost remains to be seen. If this senseless regime keeps up, the likelihood of permanent species loss will become certainty as dormant seed in the hedge is used up, each year's germinated seedlings being flailed off before they can mature, ripen and cast seed to replace it.

No linnet, marsh tit or barn owl seen this year. No silver-studded blue or peacock butterfly.

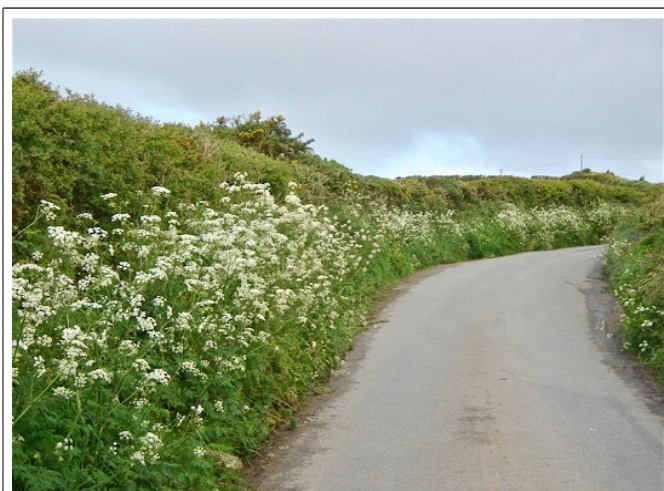
1977

June. Hedges flailed this month. They had made some recovery, as once rain did arrive in November it continued very wet all winter. Massive increase in grasses and a strange-looking phenomenon with the increasing quantity of cow parsley now all growing along foot of hedge in an unbroken white line. I have been watching this happen for three years. It used to grow here and there on hedge-face and top, a pretty, lacy insertion among the coloured flowers, but now just looks like an invasive weed. With the otherwise flower-less green banks in April and May this double white line along the lanes has a melancholy effect in the landscape. The ground at foot of hedge is enriched by a lot of the flail-mulch falling here, and with so much rain too the cow parsley plants are huge this year, a great nuisance to road users when wet as they bow outwards from both sides, nearly meeting in the middle of the lane in narrow parts. The same thing has been happening with alexanders (*Smyrniium olusatrum*), another umbellifer, near the coast. Wherever it was present among the other species, it has gone to the foot of the hedge and taken over. Maritime hedges now, since the flailing, have a dreary yellowy-green massed line all the way along them, ousting the gentle, pretty species like cowslips, sea campion and wild mignonette, and marching ever further inland.



AMONG THE MISSING. Wild thyme.

Nettles, docks, cleavers and hogweed are also growing out of this enriched soil at hedge base, but these, being later than the cow parsley, are usually flailed off before flowering. At the pond, the patch of winter heliotrope is now four times the size it was in 1972, spreading along the verge to the west. Knotweed has walked out of the pond and is following the heliotrope. Italian arum also has spread, the clumps enlarging and more clumps appearing, slowly following the heliotrope and knotweed. Rosebay willowherb is spreading fast along the hedge-top at cottage site. More onion couch has appeared.



DERANGED. The dismal line of white cow parsley growing all along the foot of the hedges. Altered by the flail.

The ivy on either side of the bulgy boulder now reaches five yards along the hedge, and nothing grows through it for two yards either side as the earlier part



AMONG THE MISSING. *Hedge mustard.*

thickens up. More ivy has been appearing all along the hedges at intervals, each spot spreading in both directions over the hedgeface. There used to be odd threads of ivy here and there, always small-leaved and seldom doing more than mingle with the other species, very low-key, only here and there managing to get its head up and turn into a bush on the hedge-top. This involves a change into the flowering and berrying status and these mature bushes are excellent for wildlife. There were about two dozen such bushes along the survey mile, some of them now badly damaged.

Each of the sources of small rooted threads of ivy on the side of the hedge-bank is growing strongly and fanning out over the face of the stone cladding. Of course there is nothing ivy likes better than enriched soil, removal of all competition, and stones to grow over, and as the flailing no longer allows the ivy to grow up into a bush it spreads out thicker and thicker on the side of the hedge. I

can see this being an appalling problem as the blanket of ivy smothers other species. The ivy sticks so tightly to the already damaged stonework that removing it would be difficult, to say the least, without completely demolishing and rebuilding the hedge.

August. The flail came round again the third week in the month.

Species absent this year:- bird's-foot, meadow crowfoot, common hemp-nettle, greater knapweed, great mullein, hedge mustard, black nightshade, scarlet pimpernel, common toadflax.

At extreme risk:- eyebright, redshank, heath spotted orchid, thyme-leaved speedwell, lesser stitchwort, barren strawberry, common vetch, broad-leaved willowherb, hedge woundwort, marsh woundwort.

Birds not seen:- chiff-chaff, willow warbler, long-tailed tit, pied wagtail and meadow pipit. So far birds recorded absent have not reappeared. It seems that when the last individual has finally deserted the hedge for a season, they have gone.



AMONG THE MISSING. *Common toadflax.*

Magpies and crows increasing fast; the flail has meant bonanza time for them, though the feast of titbits it leaves behind is drying up, as so little life now remains in the hedge to be killed.



AMONG THE MISSING. *Meadow crowfoot.*

Butterflies seen along the hedge this year:- hedge brown, meadow brown, ringlet, wall brown, speckled wood, small tortoiseshell, red admiral, painted lady, large white, small white, small skipper, small copper, marsh fritillary. Grayling and small heath have gone, needing the finer grasses among

stones of the hedge, which have been overwhelmed by the tough grass species. No large skipper, and only two small skippers seen so far this year. Numbers of individuals of butterfly species are very poor, at most two or three of any one kind in one walk along the mile.

Coarser grass-feeders among the moths and butterflies are still surviving here-and-there along the field edges, and the other species that are still present do not rely on the food plants that are being wiped off the hedges twice every summer. Only the small copper still breeds in the hedges, using common sorrel on top of the hedge-bank, and the marsh fritillary still haunts the devil's-bit scabious, also un-flailed on hedge-top.

The long-eared bats again have only three young this year.

1978

October. Flailed in June and August again this year.

Species absent this year:- Hedge bindweed, hybrid campion, ox-eye daisy, red deadnettle, bloody-veined dock, goutweed, heath milkwort, redshank, slender St John's wort, wood sorrel, common vetch, broad-leaved willowherb, hedge woundwort. The last clump of heath spotted orchid was torn out bodily as the flail hit the clod it grew in. Rescued and planted it in a nearby place where orchids still grow unthreatened so far.

At extreme risk:- Herb robert, foxglove, water pepper, burnet rose, creeping thistle, spear thistle, ivy-leaved toadflax, tufted vetch. Just before the June flailing only five foxgloves were counted, none over 18 inches high, in the half-mile where hundreds of fine tall foxgloves flourished until the hedge was first flailed in July 1972.

The hedges have not recovered from being flailed twice at the height of the 1976 drought. Now this year having a dry autumn since the August flailing, hedges are mainly dead-looking grass roots decorated with torn-up litter that people throw out of cars and the flail reveals and scatters over the surface. At this time of year, before the flail arrived in 1972, these hedges used to be full of birds, with big flocks, 50 or more, of chaffinches, goldfinches, greenfinches, yellowhammers and corn buntings feeding on the rich tangle of seeding and berrying plants. Now hardly a bird is to be seen.

Further reduction in fern numbers, and those that are left are looking sickly. Bugle, ground ivy and speedwell are dying out on hedge side, a few surviving at foot. Mosses severely discouraged, suffering from flails scraping over rocks, also smothering under mowings and by couch grass and ivy overgrowing stone face. Mowings sit on hedge rotting all summer, killing any sensitive organism under them, then wash down in winter rains and add to excessive enrichment of soil at base.

Bracken increasing all along the hedge, one of the few species that really enjoy dry conditions. Brambles also spreading fast as they tip-root in the enriched soil and, unlike the



AMONG THE MISSING. Hedge bindweed.



AMONG THE MISSING. Hedge woundwort.

roadman, the flail leaves the new root to grow. Knotweed and heliotrope now reaching along 18 feet of road verge west of the pond, apparently prevented from spreading east by traffic to field gate access across verge. Ivy is now spreading in many places at about the same speed but in both directions, to either side of the original root, roughly a yard per year each way. At the cottage site rosebay willowherb along top of hedge, Italian arum on side of bank and three-cornered leek along foot of hedge are also spreading. The rampant weeds are all profiting from the mulch-enrichment of soil and the removal of competition.

Hedge-top bushes and trees have every year shown more reaction to flail damage which has continued to eat further into the branches every time. Now severely damaged and reduced, many with just the half-dead trunk or one branch surviving, stripped of all green growth, others with diseased foliage. Smashed twigs and branches allow fungal spores easy entry and reduce vitality. Loss of shade from dying bushes is hastening dehydration of hedge-bank caused by removal of green herbaceous growth.

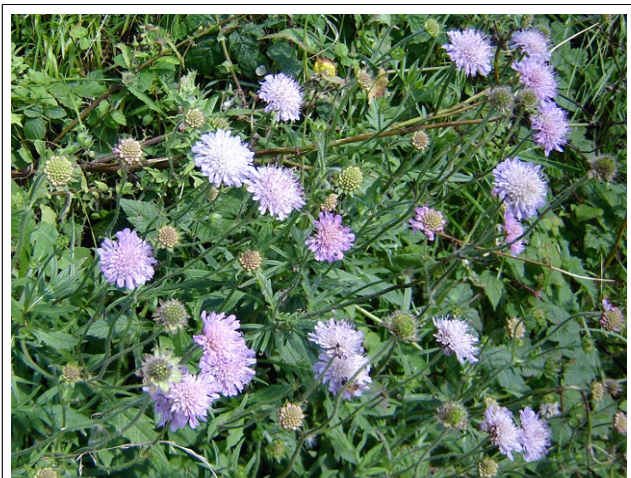
Damage to hedge structure worsening, with fallen stones a hazard to cyclists at night. At every flailing more stones are dislodged, until it has become impossible to replace them properly. This damage causes individual stones to fall at any time, and more frequently several stones collapse at once. The hedge core is now so dry that when a stone comes out the ones around it may no longer stay in place. I can only throw the stones up on top of hedge to save them from being removed when the council comes to cut out earth along roadsides and take it away - another harmful innovation. The road-man used to shovel it up and 'cast up' on to the hedge-top, returning soil and seed to the hedge to repair the effects of gradual weathering and erosion.

Tawny owl and kestrel no longer hunting along lane, confirming absence of any sighting or evidence of voles, shrews or field-mice scrambling about the hedge-banks as they used to do. Only one sighting each of bullfinch and coal tit this year in the mile. No frogs or toads at the pond or in hedge foot where there used to be so many. The grass stubble is so short and dry, there is no damp cover for them. The summer chorus of grasshoppers has never been heard since the first flailing, now reduced to just one or two heard in the whole mile. The caterpillars, slugs and snails that used to be seen in every yard of these hedges have almost gone. Not only impact-killing during flailing but loss of cover and the dehydration of crevices eliminates these species. Even spiders, which might be expected to survive by hiding in crevices, are drastically reduced in number. Pre-flail the hedge on an autumn morning used to be thickly covered all over with the draped silvery gossamer of many thousands. It is now seven years since I saw this pretty, seasonal sight. This month on a suitably misty day I counted only eleven orb webs and fifty-three others, including both sides of the road along the mile.

Butterflies seen this year:- hedge brown, meadow brown, speckled wood, small tortoiseshell, red admiral, large white, small white, small skipper, small copper, all very scarce. The highest count of any one species on one day was three small whites. Small skipper only seen once, one specimen.

Six long-eared bats this year - adult population halved and only one young one.

1979



AMONG THE MISSING. *Field scabious.*

September. Only one red campion plant seen in flower last winter. Nothing to report for most of the year now, except empty shaven banks of half-dead grass and roots, so begin this year with a summary.

Flailed in June and August this year.

Absent:- hedgerow cranesbill, spotted deadnettle, eyebright, cross-leaved heath, keeled-fruited cornsalad, fool's parsley, burnet rose, field scabious, vervain, barren strawberry, ivy-leaved toadflax, marsh woundwort.

The last root of spotted deadnettle at the cottage site was torn out by the flail last year (rescued and replanted in house garden). The burnet rose, another of the survivors so long ago planted at the cottage site, struggled to overcome the die-back following each flailing, but by last year only managed one small weakly sprout from the stump and this year has died.

There is no point continuing the list of species at extreme risk as this now applies to nearly all remaining species except the toughest of the tough. Seventeen are down to one specimen. Perennial plants, blind since flailing began, are now dying out. Only the early spring plants and rampant species still flourish. The onion couch is spreading very quickly.

Fly-tipping at the pond site has introduced grape-hyacinth and pink oxalis, both growing near the set-back hedge with the original clumps of knotweed, where the flail never goes.

Birds absent this year:- coal tit, goldcrest, bullfinch. Like the plants, the remaining birds are disappearing fast. Mistle thrush, goldfinch, greenfinch and corn bunting each down to one sighting this year. Only starlings seen with any frequency, and these are massively reduced, probably by a combination of circumstances. Flocks going to roost used to darken the sky while flying over ceaselessly for half an hour near twilight. Now flocks seldom amount to more than about five hundred birds. As these are field birds rather than hedge birds the loss may be partly due to other factors such as changes in agricultural practice. Few farmers in West Cornwall have made any radical change to their ways, and those adjoining the survey mile remain firmly traditional so far (though unfortunately acquiring flail-mowers for their hedges). The reduction in actual hedge sightings of starlings, as of all the other birds, is entirely due to the flailing; there is no forage for them along the hedges any more.

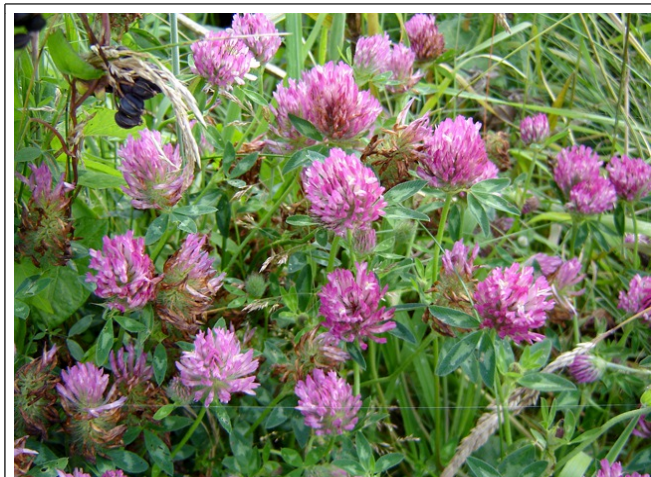


AMONG THE MISSING. *Marsh woundwort.*

The long-eared bats again have only one young one this year.

1980

August. Absent:- agrimony, bugle, red clover, creeping jenny, trailing St John's wort, devil's-bit scabious, common field speedwell, wild strawberry, purple sweet violet, hybrid willowherb.



AMONG THE MISSING. *Red clover.*

The last of the dwindling creeping jenny died as the knotweed's deep storage roots seem to have breached the clay pond-lining and the water has gone, so the flailed pond-edge area dries out in summer. The last sprig of cross-leaved heath, probably a survival from the damp-loving moorland flora of pre-enclosure days, disappeared last year.

Cycled fifteen miles looking for field scabious and yellow toadflax along lanes in West Cornwall where before the flail they used to be abundant. Failed to find any, in fact the only flower I saw in the entire flailed area of all the roadside hedges was

one stem of lady's bedstraw hanging alone on the shaven bank near Carbis Bay where it had somehow remained intact as the flail passed over it. Have never seen this happen before - or rather, have never seen it left. Have often seen the driver, when he has missed a few whiskers of growth between the two passes, or the flail having lifted a couple of inches for a moment has not shaved quite so close, backtrack and go over it again as if carrying out a deliberate policy of extermination.

These survey results have regularly been confirmed by observations of many other hedges in Cornwall. While the type of growth or the list of species may differ or the flailing times vary, the trend is always the same - sickly plants, seriously reduced numbers, loss of the more vulnerable species, steady increase of rampant alien weeds and alarming absence of animate life. Everywhere summer flailing is being carried out (and that means everywhere the most wildlife was), the living creatures have vanished and the plants which rely on annual seeding are disappearing fast. Bush vetch seems to have gone, also all the fumitories including quantities of purple ramping and western fumitory, special to Cornwall; while even the beautiful tufted vetch, once super-abundant, has nearly disappeared.

Most other species are in rapid decline, foxgloves now stunted and very scarce, usually under a foot high and with a sick, twisted appearance. Even cow parsley now reduced, after initially doing so well along the hedge-foot due to early seed-ripening and soil enrichment. Tap-rooted plants such as umbellifers do better than others in dry conditions, but now it is so dry even at the bottom of the hedge-bank that they are beginning to look poorly, hogweed much reduced in numbers. Plants of all the native species remaining are diseased or discoloured by drought, with a lot of mildew on the umbellifers.



AMONG THE MISSING. *Wild strawberry.*

Hedges in Penwith seem to be particularly bad, as they are based on a freely-draining and sometimes shallow soil and much exposed to drying wind and sun. Other districts seem not to be flailed always so early in the year. The council officials assure us that the machines start early somewhere different in rotation, so no area gets too much of it. Can't say we've noticed it here, though parts of Kerrier, at least, are not done until August or September, which is less immediately damaging to the early-seeding flora but still bad for everything else.

Long stretches of the remaining hedge verdure are dying due to consistently flailing back to earth and stone twice every summer. Collapse and undermining of the stone face continue, and nothing grows in the earthy spaces formed, as the hedge is dehydrated throughout. Grasses no longer thriving but stunted, brownish, spotted and sickly all year round. The only exception is the onion couch, which is appearing all over the hedge face and is easily seen because it recovers more quickly from the flailing and looks noticeably healthier than the other grass species. Clearly one of the unkillable squad.

Bracken now rampant, Japanese knotweed and winter heliotrope increasing by over a yard per year. They make a longer and longer patch along the verge, not dying out behind as they go but regenerating the whole patch at the same time as enlarging it. The heliotrope, which had a head start due to its original position at the western edge of the pond, keeps just ahead as they both move at about the same speed, the knotweed perhaps slightly the faster. Heliotrope and knotweed make an unholy alliance as the heliotrope completes its season's growth before the knotweed grows up and shades it, keeping the heliotrope roots nice and damp through the summer and then dying down in time for the heliotrope to make its new growth again towards Christmas.



FLAIL DEATH. Inch-tape showing 12in diameter trunk of hawthorn tree killed by the flail within eight years of progressively smashing off branches, de-barking and carving off one side of the trunk as seen here. Taken in June 2007 still lying where it collapsed on the verge of the survey lane.

Hedge-top bushes dying out, gone from many places along the lane. Not only the burnet rose but the elder, broom and native privet at cottage site have died right back and disappeared. Neighbouring farmers are now using a flail machine around the fields, putting paid to one-sided survival even of gorse, hawthorn and blackthorn. This year a fine hawthorn with a trunk twelve inches across at the base finally died, all its branches having been gradually smashed off since 1972, and the council-flailed side of the trunk sheared away to half its thickness. I have never seen the council's flail used horizontally across the hedge-tops, but its slanting trim going ever closer has more than half killed the bushes so the farmers are encouraged to flail down the ugly, moribund remains horizontally from the field side,

probably in hope that it will regenerate and thicken them. Unfortunately when they are already so far gone it usually finishes them off.

Loss of shelter is already so marked that it's horrible cycling along much of the lane, the whole of the higher, level part and the downhill western end exposed to the prevailing westerly gales and the driving rain. No butterflies are ever seen on the wing now along the windiest half mile. Precious few anywhere else either, sometimes just one or two of the commonest (large white, small white, hedge brown, speckled wood or red admiral) seen along the whole mile. The last of the marsh fritillary butterflies disappeared after the first horizontal flailing of the hedge-top where the devil's-bit scabious grew.

Yellowhammer seen only once in the lane hedge this year, one flying across fields landed for a moment on hedge-top bush, then carried straight on across the road. Other birds

remaining in the area are still congregated in gardens, seldom seen in the lane hedge and then usually just passing over. No great-tit, blue-tit, goldfinch, greenfinch, corn bunting, house sparrow, robin, blackbird, song thrush or mistle thrush seen this year in the survey hedge. Only wren and hedge sparrow still search among the half-dead gorse on hedge-top for tiny insects, perhaps one of each of these two birds seen in any one walk along the mile of lane and back.

A family of adders has taken up residence at the cottage site, enjoying the dryness and foliage loss. They have established a basking-place in the stubble right on the corner about halfway up the hedge-bank. Very beautiful but not the most welcome, lying there at child-height and just a small hand's reach from the road.

The long-eared bats are reduced to four, with no young this year. Suspect malnutrition may be playing a part in declining fertility.

1981

October. Flaied earlier than ever in June this year, and again in August. Managed to catch the flail-driver in June to ask if he would leave the short piece of set-back hedge alongside my gate, in future. Wish I'd done it before, but at least I'll be able to see if there is any recovery. The poor man looked as if he thought I was going to shoot him when I flagged him down. So many people, frustrated at every other avenue of complaint, have a go at the drivers which is not fair as they are not responsible for the policy. He was very relieved that my request was polite and we had a friendly chat.



AMONG THE MISSING. *Common fleabane.*

Absent:- Hemp agrimony, burdock, wood dock, common fleabane, tall ramping fumitory, self-heal, ling, mugwort, thyme-leaved speedwell, common bird's-foot trefoil. Water pepper and square-stemmed willowherb have gone too, as the area around the pond has dried up and the knotweed taken over. Counted only four seedlings of fumitory (common ramping).

At the slightly damper and more sheltered eastern end of the mile a few of the woodland-edge plants - campion, stitchwort and bluebells - have been managing to survive. In the more exposed parts of the lane (that is, for the greater length of the mile), hardly anything has flowered



AMONG THE MISSING. *Hemp agrimony.*

since the flail came round in June and very little before it did, mainly violets and bluebells looking blindingly obvious in patches unmixed with any other flowers.

Mowings were examined as always as the flail passes, sampling handfuls every few yards all along the mile, both sides of the road. Produced no remains of moths, beetles, bees or other recognisably animal fragments, until at the eastern end a few of the handfuls contained the odd piece of perhaps a dozen or so moths and snails all told.

Magpie population has really exploded during the past few years, now frequently see flocks of a dozen or more perched chattering on half-dead thorn trees on the hedges. The flail has meant rich times for them, with the ready-chopped carrion it leaves behind and by laying bare crevice-dwellers and nests to their view. The mowings now give them poor pickings on the roadsides. They have stopped searching in them along the survey mile altogether, confirming absence of invertebrate life (or I should say, invertebrate remains), and they have abandoned their nest site at the eastern end of the mile; but with farmers scrapping their old finger-bar hedge-trimmers more field hedges are being flailed all the time and the magpies follow like seagulls after the plough. On the roads they are also served by the traffic-speed problem as more animals are killed. The flailed-back hedges have turned the lanes into racetracks.



AMONG THE MISSING. *Self-heal.*

A swallow was struck dead by a car in July at the eastern end of the mile where a few insects are still to be seen between the sheltered hedges and the swallows nesting at the farm cross the road in their flight. The car went past me very fast, I heard the impact and when I walked back up the road I found the bird, which I had seen swooping back and forth on my way down, lying on the tarmac still very warm.



AMONG THE MISSING. *Common bird's-foot trefoil.*

Heard a lone grasshopper chirping in the hedge on 6th July, none other heard all summer. No yellowhammer, chaffinch or starling seen in the survey mile this year. No meadow brown, small copper, small skipper or small tortoiseshell.

One of the four remaining long-eared bats found dead in the garden. Not a mark on it but it weighs very light so the cause is probably starvation. This seems likely as there are now so few moths seen nightly at the house windows.

1982

July. Ten years since there was any pleasure in walking this road. It now represents foreboding for the future of wildlife survival, visual disgust at the ugliness left by the flail, frightening encounters with traffic, and the unpleasant sight of rotting furry corpses with their entrails spread out on the tarmac.

As the hedge dries out, rabbits are doing well. The dryness of the earth core and the tumbling stonework make easy entry for them to burrow. There are now more rabbits than I have seen here since myxomatosis took hold in the 1950s, and plenty are killed to feed the magpies and crows as cars race along the now permanently-shaven lane. The hedges make no normal growth at all between flailings - so why on earth keep doing it? Last year there was not a single day without the remains of a rabbit somewhere along the mile; by the time one disintegrated, another was killed. This year there are yet more rabbits but fewer corpses. The herbage on the road side of the hedge is now so unpalatable, withered and diseased, they are



AMONG THE MISSING. *Enchanter's nightshade.*

staying on the field side and foraging further out into the field than usual - a bad effect of flailing from the farmer's point of view. The rabbits used to browse mainly on the road side of the hedge where there was a much better choice of salads than on the field side which is grazed by cattle. For some while the only reasonably fresh-looking green thing has been the onion couch, and I suspect the rabbits may not like it any more than the pony does. Presumably it does well because the 'onion' at the base of each stem acts as a reservoir for food and moisture.

Buzzards patrol the hedge hunting for baby rabbits. Stoats are doing well, also foxes though the road toll continues, including a cat this year. The stoat seems to be the only animal that doesn't get killed - too quick and clever, maybe. The cause is not only the reckless speed vehicles now go along these lanes, but no invertebrates are left in the roadside hedge so foxes and badgers, instead of ambling carefully along the hedge-bottom hunting for beetles, grubs and other small prey and picking fruit and vegetable food, are running straight across the road to the fields on the other side. This puts them at greater risk of collision with a speeding car as they jump into the lane. The victims are always found lying dead at or very near their crossing places.

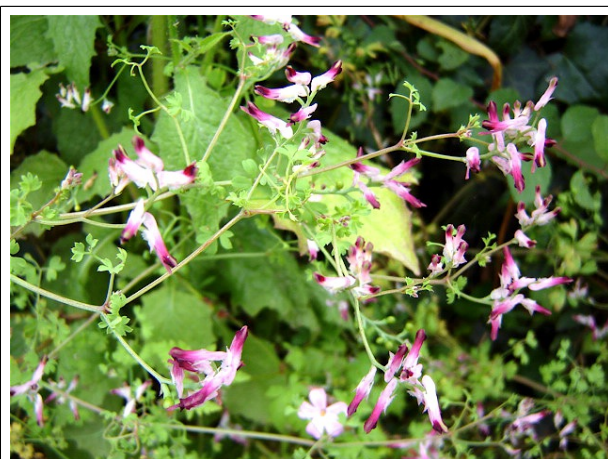
Flailed half-way through June this year - earlier every time. When the flail came round it was a different driver, but I managed to catch him when he was halfway along my bit of hedge, so saved some of it again.

September. Flailed again in August.

Absent this year:- common avens, curled dock, water figwort, common rampion fumitory (the last of the fumitories), enchanter's nightshade, ivy-leaved speedwell, sow thistles (rough and smooth), lesser yellow trefoil, trailing tormentil.

Wild golden rod, wild carrot and wild angelica, all usually persistent species, are nearly gone (having been blind for years), and even the toughest species - creeping buttercup, cleavers, common daisy, dandelion, broad-leaved dock, hogweed and black knapweed - are becoming scarce. In ever-shrinking areas of grassy hedge-face between the spread of ivy and bracken, only a few cat's-ear, betony, sheep's-bit scabious and autumn hawkbit now remain of the pretty summer-flowering heath species. These are short-stemmed and stunted, among mainly dead-looking grass with only its growing tips still green. The least-affected species now are lesser celandine and white clover, both along foot of hedge. Common violet and bluebell still show well in shrunken areas of grassy hedge-face between the ivy and matted scrub, but the bluebells are very small and short-stemmed, none more than six inches high.

Ferns are scarce and looking very sick. Grasses also half-dead and disease-ridden, and do not now recover in winter as the rains are no longer absorbed into the hedge. The earth core is acting like any dust-dry substance and repelling water. Rainfall now has the effect of water-logging the dying grasses, rotting off the drought-starved stems at root-level between



AMONG THE MISSING. *The last of the fumitories.*



AMONG THE MISSING. *Smooth sow-thistle.*

the stones of the hedge-face, while the roots themselves remain bone dry. Taking a few blades between finger and thumb a complete clump of cock's-foot, normally one of the strongest-rooted grasses, comes away with a light pull. Areas of up to thirty yards of hedge at a stretch are dying, the whole appearance sickly, brown and barren all the year round. Even the onion couch now looks half dead, but is still spreading at an alarming rate. Evidently the storage bulbs at the base of the stems do make it unusually drought-tolerant.

The rosebay willowherb is now all along the cottage hedge from gateway to corner of adjoining lane, 40 yards. It has spread from original clump, about two feet across, which had not enlarged in ten years previous to flailing as it was kept in check by surrounding competition from other plants. Now competition is removed by flail and its mulch builds up harmful enrichment of soil, the tough weeds making growth

early in the year or left un-flailed are spreading like wildfire. Italian arum and three-cornered leek really beginning to spread too. After each flailing the heliotrope and knotweed put on a spurt of growth.

Even though the knotweed has come forward out of the pond and has run along the verge for nearly thirty feet, the flail never touches it either in June or August. Flailing it down two or three times a year while the growth is soft (before a foot or so high, as after this it gains ability to root from fragments) would at least contain it by weakening the rootstock, but instead they treat it with the utmost respect, trimming it gently with a vertical flail along the exact edge of the tarmac, leaving it as a block to drivers' vision along this straight part of the road where people 'put their foot down'. I have to cross the road and walk, cycle or lead the pony on the other side for fifty yards, otherwise cars speeding past the knotweed forest don't see me.

Most of the hedge-top bushes are gone and the survivors in ruins. Long sections are now bare on top, more than halving the shelter effect along the lane and increasing dehydration due to shade loss and drying winds. It is now a frequent occurrence for stones to fall out, twice this year enough for a sudden avalanche landing all across the road as a section of stone cladding a yard wide gave way. This usually happens after a day of heavy rain as the loosened stonework waterlogs and peels away under its own sodden weight, the sloppy outer layer separating from the dust-dry core.

No longer expecting the council to take any notice or do anything about it, I pick the fallen stones up and put them back in the hedge as best I can. I am a capable hedge-builder but this is a heartbreak, the totally dust-dry core of earth makes a proper repair impossible. In one place over six feet width of hedge face, top to bottom, is now bare of stone or growth and the bank top is sagging.



FLAIL DAMAGE : A poor photograph, taken early in the year (March 1982) on north-facing hedge of the survey lane. Shows holes near foot of hedge where large stones have been dislodged by flail, dry earth now sliding out from dust-dry core.

I saw the first of this year's avalanches happen, early in January, when a big patch of stone facing collapsed without warning - luckily just far enough ahead not to knock me off my bike. I cleared up and counted the 23 fallen stones. The cause was clear to see. It was raining heavily and while the stones were sodden the earth core of the hedge from which they had fallen was still dust-dry, even after the winter's rainfall, and the surface slop from the current downpour was rolling off it like mercury. Once the core of a Cornish hedge dries out completely like desert sands, the capillary action drawing up dampness from the subsoil ceases, rain and dew-fall are no longer absorbed, and, unless it has a chance to re-hydrate given wiser care, the hedge's whole life system and structure fails. This is what the unnatural conditions caused by summer flailing have brought about.



FLAIL DAMAGE : Flail scar showing granite hedge stones scraped white, nothing but dry grass and stunted bracken stalks on hedge side save for one small foxglove plant, a ribwort plantain and one tiny violet.

The damage from scarring the stones and cutting into the earth has increased as the flail scrapes closer to remove the few inches (3" - 6") of growth that is all there ever is now on the near-naked bank. Parts are scarred so white with this damage they look as if built with lumps of chalk, not granite, while other parts where a lot of stones have been torn out are of plain earth trickling away to form big cavities.

The destruction of the hedges is now so plain to be seen, more and more people are complaining to the council. Our public servants seem to have developed a number of stock answers to that pertinent question as to what on earth they think they are doing. I quote verbatim and my sources of information are many and reliable:-

“It is not us who are doing it, it must be some farmer.” (So why do the tractors carry the Cornwall Highways logo?)

“They are not supposed to be in your area, we will see into it.” (Somebody must tell the drivers where to go? But so far this answer has not meant that the seeing-into stops them.)

“We have to start somewhere.” (Yes, but they should be starting in mid-winter, not May.)

“We start somewhere different each year, so everyone gets a turn at the early time.” (So when are we going to get our other turns?)

“We only do it on the bus routes.” (Nonsense, they do every least, last lane - and has it escaped their notice that our bus was axed in 1971?)

“We have to do it for road safety.” (Have they tried walking in the flailed lanes? And if the wild flowers all along the hedges are a hazard why was anyone left alive in Cornwall by 1972? We keep saying by all means trim the poor visibility spots.)

“If we stopped doing it because you don't like it and someone was killed, how would you feel about that?” (This is emotional blackmail. And without doubt - as I remarked when this one was said to me - people are far more likely to be killed at the mad speed the traffic goes now the hedges are flailed.) One person was actually told it would be her fault.

“People complain if their cars get scratched.” (So why not just trim the passing places, which would encourage them to use them? And is the notion that a few fussy people might be afraid of scratches on their car a valid reason to destroy the vast bulk of Cornwall's wildlife in a wholesale massacre?)

“For every one like you, there are two who want it to be done.” (This is pure fantasy. I myself was told by one official “For every one like you, there are twenty who complain if it isn't done,” while another made it “fifty”. Perhaps they thought that having done my homework I warranted preferential terms.)

“Nobody else has complained.” (Oh yes they have.)

“We'll pass your comments on.” (Watch this space.)

Still no yellowhammer, so it looks as if even this once-so-prolific bird in these hedges, the last one having gone for a season, has really gone. Only the occasional wren or hedge sparrow seen this year. The last three long-eared bats at the house have disappeared. They never emerged this spring and the likelihood is that shortage of food left them unable to survive hibernation.

1983

May. The flail has come round the earliest yet, when bluebells were just coming into flower. Usually it comes just after they are over, too soon for them to mature properly, re-invigorate the bulb and cast their seed, but so far although stunted they still manage to cover the spaces left between the close-shaved mats of gorse, bramble and ivy. In these remaining grassy patches the



AMONG THE MISSING. *Ragwort.*

hedges were a strange sight at bluebell time last year, a mass of deep blue sprinkled with red-brown sorrel (proving to be a very resilient species) giving an effect that could hardly be drearier. These two are almost the only May/June flowers still blooming, only very small, no bluebell more than six inches high. They follow the equally strange-looking purple masses of common violet, the last of the earlier spring flowers managing to hang on. The comparison of these dull dark green, blue and brown hedges with the past tapestry of pink, white, blue, gold and purple at this time of year is, indeed, odious.

For several years now there has nowhere been more than a foot depth of plant growth on the hedge sides at any time, making a mockery of the claim that the continued flailing is in aid of road visibility. Today, 20th May, this year the thin sheet of little bluebells a few inches high, with the first bells just breaking from the bud, has been flailed off, leaving them only along the top of the hedge and here and there a short thin line of blue at the foot, or three or four little blooms in a pocket where the flail has missed them. I have carefully noted and marked the position of these remaining bluebells - not difficult as the flail is so efficient that misses are few and far between. The only ferns left in the mile now are similarly placed in small pockets between the stones where the flail misses striking off their growing crown.



AMONG THE MISSING. *English stonecrop.*

September. After coming round in May to delete the tiny bluebells, the flail came round again in July, and yet again at the end of August. Nothing to cut either time except three inches of withered grass stubble. If this seems like utter madness and a criminal waste of public funds, it is.

The loss of life and the damage to the hedge's system is now incalculable. Few species could recover their former presence or abundance even if the flailing were stopped immediately. The worst problem, after the loss of seed replacement, is the spread of ivy and other rampant weeds. This prevents other plants from re-colonising and has ruined the habitat for specialist invertebrates - even if any of these were left alive.



AMONG THE MISSING. *Wild golden rod.*

Absent:- Wavy bitter cress, wild chervil, beaked hawksbeard, hairy hawkbit, wild golden rod, ragwort, sedum, slender speedwell, English stonecrop.

Moth count at house lights down to a few once-very-common pasture-grass or bramble-feeding species and those that live on the sallows and hawthorns nearby in the valley. No moths have been seen in the survey mile this year, and no invertebrate remains were found in the handfuls of mowings. In many places impossible to pick up a handful, there is so little growth on the hedge that mowings are scattered thinly and it is easy to see there are no remains in them. There is nothing to be seen alive in the denuded hedge, either.

No hedge sparrow seen in the mile yet this year. Total count of bird life to date during 1983:- wren sighted twice. That is, on two of the 263 days so far this year, on every one of which I have walked the mile of lane at least twice as my daily business takes me that way, I saw one wren, and no other bird. On the other 261 days I saw not a single bird of any species in the hedges of the lane.

1984

April. Hedges are a strange sight this spring, dead-foliage brown with a bit of dark green in the gorse and ivy, alternating with big pale-purple patches of violets. The common violet has held on surprisingly well, due to low growth and early flowering, but the removal of protecting shady growth of bigger flowering plants later in the season means it is increasingly threatened by drought in summer. Violets love spring sunshine but will not stand drying right out. Wall pennywort is drought tolerant and still lives, but the plants are tiny and red in colour, and in bloom the miserable little spikes are only three inches of shrivelled flowers whereas they used to be eighteen inches tall and crowded with succulent greeny-white bells.

May 20th. Managed to get means to photograph hedge before flail comes round again - wish I could have done so properly before. Nobody could believe these were taken in May. No flowers or normal growth. Hedge growth mainly composed of dead grass, still retaining ugly clipped appearance from last flailing nine months ago, and half-dead ivy and gorse, ditto. Total loss of hedge-top bushes at western end of survey mile as far as the eye can see and extending to more than a third of the mile. Dehydration can be clearly seen, as a line of green shows at base of hedge from slight rising damp.



20th May 1984. *The survey hedge at the western end of the mile. Cow shows loss of hedge-top bushes (field level is higher than road surface). Maybe she is considering jumping over, but there is nothing to tempt her. Growth consists of withered grass stubble, bramble and bracken stalks, as left at the last flailing in August 1983, showing dehydration of hedge, no new growth since then. Green line at base shows where grasses and the odd dock-weed find a little rising damp. Only one flower as far as the eye can see (stunted cow parsley at hedge foot to right of cow). The only thing that shows this scene of arid desolation was indeed taken at the height of the spring flowering period is the high angle of the sun (short shadow of telephone-pole on right).*

I thought afterwards I should have held up a bunch of May wild flowers in the foreground to show that the desolate scene really was taken at the peak of the spring flowering season, but they would have had to come from the garden and might have given the false impression that they were still to be found growing wild in the area. Tramped the whole parish looking for a flowery un-flailed hedge to photograph but found only two, along unmade tracks, and not as floriferous as road hedges used to be before the flail.

Effect on bluebells of being flailed in bloom last year is even worse than expected. Bulbous plants like bluebells need to grow their leaves to full size after flowering, and die down naturally, in order to return energy to the bulb for next year's growth. The flailed hedges show only sparsely-

scattered tiny bluebells and in most parts none at all, where until last year was a mass of blue. Not only are the visible plants blind but the number of plants is reduced by about 85%. Proof that the loss was entirely caused by flailing is given by the fact that everywhere else, other than the exact flailed area of hedges, bluebells are flowering in their usual profusion. In the survey hedge the bluebells in the marked places, the thin lines at hedge foot and the odd few in small pockets, are flowering again exactly as they were left by the flail in May last year, while those along the top of the hedge, which was not flailed, are a mass of blue.

Bluebells also appear in their usual numbers along the short length of hedge which has not been flailed since 1981. The half that was twice saved from flailing is noticeably better than the half that was flailed again before I could prevent it. Other householders have been actively preventing the drivers from flailing their pieces of hedge. These frontages now look far healthier and much more floriferous than the hedges alongside, and this year their bluebells are particularly noticeable in contrast to the area flailed last year, where there are none.

This May there is barely a flower on the face of any roadside hedge in West Cornwall, nor even any healthy clump of grass. In the survey mile I found one flower (cat's-ear) today and photographed it for posterity. Lesser celandine is dying out with drought - not just dying back above ground as normal. White clover and cow parsley struggle on at foot of hedge where slight rising moisture is still found. The cow parsley is suffering from drought discolouration and lack of vigour, most having only one flowering stem and only about a foot high. Dryness is now accounting for the heavier losses, as most annual and biennial species hardest hit by denial of seeding have already gone.

Italian arum was last year flailed in flower along with the bluebells, so this year has very few flowers and the leaves are stunted, a quarter usual size. Maybe a good thing as the arum is spreading, though slowly compared to the heliotrope.

June 3rd. After recent rain, noted in the more sheltered area of hedge downhill towards woods at the eastern end of the mile some bluebells, stitchwort, red campion, common sorrel and cow parsley looking a little healthier. If allowed to seed this year at least it would benefit these few species in this area. Noted one plant of tufted vetch and a small amount of narrow-leaved vetch, all stunted seedlings, also a few plants of herb robert and a straggling patch of heath bedstraw. Even in the better areas not more than a few inches of growth have been made since the last flailing (August last year) and this is mainly sparse whiskers of common couch grass and starved clumps of the now inevitable onion couch.



DECIMATED. Bluebells flailed in bud 1983 almost all vanished. (Photo taken 2007 where some had recovered at shady eastern end of mile.)

The loss of bluebells has left this year only common sorrel flowering in any quantity, which does look even drearier than bluebells and sorrel, after all. Even the resilient species are diminishing rapidly. Red campion, stitchwort, herb robert, yarrow and germander speedwell, formerly among the most abundant in this hedge, are now very sparse along the mile, with around 20 feet between specimens of red campion and considerably more between the others. A once notable patch of the speedwell four feet by two, a mass of blue beside the gatepost at the cottage site and which I admired every year prior to 1972, is now down to a straggly ten inches by three-and-a-half, choked by grass and barely flowering.



FLAIL DAMAGE. Holes all over this section of hedge show where stones have been torn out by the flail. Only four stones, all loosened, remain in this section, visible at centre right and lower edge of picture. One starved foxglove top right, one small campion bottom right, stunted bramble left, otherwise just half-dead grass and gorse. May 1984.

Creeping buttercup, cat's-ear, dandelion, black knapweed and plantain are again reduced, mainly growing at the foot of the hedge. Hogweed appears spasmodically in a very few places where one plant has survived to drop seed from the hedge-top and a little crop of seedlings below has taken advantage of the slight dampness at the very bottom of the hedge-bank. Smothering and enrichment from flail-mowings falling here have put paid to all but the toughest plants. Even silverweed, rayless mayweed, common daisy and knotgrass have nearly gone. A clump of water dropwort in a set-back damp spot, a couple of wild carrot, wild angelica and common figwort and the one plant of pendulous sedge remain.

Much is obliterated by the wheels of traffic, especially lorries, squeezing along the hedge face. Nearly all the milkmaids have been destroyed this way, one plant after another, as liking damp they have always grown at the foot of these hedges.

This has only been a problem since the flailing has encouraged drivers too near the hedge, running on to the verge (where there is one) and tearing down the hedge structure, spreading mud, stones and debris on the tarmac, a danger particularly to cyclists at night. Far from merely scratching their cars I have seen several drivers do real damage to the bodywork by trying to pass each other, fooled by the apparent width between the shaven hedges, instead of using the passing-places.

Gorse, ivy, brambles and grass, closely matted on the stones and half dead or wholly dead are the main constituents of the hedge-growth. Onion couch is now the dominant grass all along the hedge. I have been noticing its incredibly rapid spread as I dislike it so much - a grass that is a menace in the garden, is unpalatable for stock feed and has no great charm to recommend it. Bracken likewise has been exploding during the past few years, the curled young shoots are appearing all over the hedge-banks this year. Knotweed and heliotrope are still spreading with alarming speed. The knotweed has overtaken the original patch of heliotrope and is increasing by a couple of yards per year, while a new patch of heliotrope has appeared 30 yards ahead of the main patch and is spreading westwards like an advance guard.

The county council's attempts to control the flail-induced explosion of these pests along the main roads have been by weedkiller and appear to be less than useless on these tough rootstocks. They don't spray till the growth is in full leaf and it has been observed that the spraying seems to act as a tonic by inducing a second lot of growth in one season. Then they don't bother to do anything the next year, and all the defensive sprouts put up after the spraying grow strongly, increasing the crowns. The much more effective method is to cut the young growth repeatedly, which will, as the flailing has proved, kill anything in time. A neighbour whose land almost abuts the survey mile has to all appearances eliminated a quarter of an acre of Japanese knotweed by this method, cutting off the young sprouts before they opened their leaves. At first it put up a lot more stems after each cutting-down, but they were only half as strong as before. By the third year it was in trouble and in the fourth year, after the first burst of now extremely spindly stems in April were promptly cut down as usual, it gave up. Since then she has only had to pull up the occasional weakly sprout.

It is ironic that these introduced weeds spreading so rapidly, due to the removal of all the competition and enrichment of soil by the flailing, are the ones that the flail never controls. The drivers treat the knotweed as if it were something precious, just trimming the front edge of the patch with a vertical flail or leaving it altogether untouched. The rosebay willowherb, likewise left unhindered on the cottage hedge-top, is spreading very fast indeed. The heliotrope, arum and three-cornered leek all finish their crucial growing period by the time the flail comes around, so are able to laugh at it. If the council would exactly reverse the procedure, flail these monsters to smash every year between December and May in their young growth, and not touch any of the other parts of the hedge or its plants with the lethal machine, there might be some sense in it.

In the half-mile where used to be masses of foxgloves only two are flowering this year, one flower spike six inches high, the other ten inches. Comparing these to the hundreds between three and six feet high that grew along here prior to the first flailing gives a striking demonstration of what the flail does to a Cornish hedge.



RAMPANT. Young stems of Japanese knotweed growing up through last year's dead ones at the edge of the old pond site. They should be cut down at this stage, before leaves open and stems begin to harden.

Besides the plants mentioned, no other flowering species are to be seen at today's inspection, June 3rd.



4th June 1984. Taken on a blind corner after flail has cut lower swathe. This massively built north-facing hedge is less dehydrated than most, yet little growth has been made since last flailing. Only common sorrel in last year's flailed area (upper half of hedge). Bluebells still bloom on top of hedge where untouched by last year's flailing. The year before last this whole bank was covered with a mass of bluebells as always until flailed when just coming into flower in May 1983.

June 4th. Yesterday's hopeful observations at the eastern end were a waste of time, as today the flail has once more done this entire area. You'd think that the howl of protest from the public over the bluebells last year might have brought a change, but evidently not. I watched as in places the driver actually lifted the flail and drove on, as there is literally nothing to cut, just dead-leaved ivy clinging closely to the dry stones.

Took a photograph between the first pass (along the lower half of the hedge) and the second pass of the flail on a blind bend, hoping to illustrate the visible tiers on the hedge:- a) not enough growth to justify trimming, b) nothing but common sorrel flowering in last year's flailed area, no bluebells left in this part, and c) plenty of bluebells flowering on the top of the hedge where never flailed, perhaps because it's quite high just here. Not very successful photo, sun in the wrong place and a poor quality commercial print, not showing up the blue flowers, just a vague blue mist on hedge-top.

A few other flowering species continue to survive, though weakly due to dehydration, in areas of hedge consistently missed by the flail, and to flourish as usual wherever the flail doesn't go, making nonsense of various theories put forward by armchair conservationists as to the decline. 'Acid rain' is the latest gem of wisdom from the Cornwall Trust for Nature Conservation, to explain the disappearance of red campion from the roadsides. Unlike the rain He sendeth on the just and on the unjust, their acid rain evidently falleth on the flailed but not on the un-flailed. In the garden of the house adjoining the survey mile, red campion and the rest of the garden's 128 cherished native wild flower species, 102 of them the same as originally found pre-flail in the lane hedges, continue to grow and bloom profusely. Here, too, orange-tip butterflies still continue to breed, using mainly sweet rocket, whereas the nearby roadside colony on milkmaids and Jack-by-the-hedge was decimated at the first flailing and killed out at the second in 1973.

August. After four months of near-drought the hedges are deeply dehydrated, many more parts are dust-dry right through the core and running out from the crevices between the stones like the sands of time. A few yarrow, black knapweed and sheep's-bit scabious have struggled into tiny stunted flower, as has cat's-ear in very reduced numbers. Betony is surprisingly tenacious, perhaps because its flowering comes exactly between the two regular flailings. All plants, including grasses, are weakly, wilted, mildewed and diseased, especially those at the foot of the hedge - further up they are mainly dead. Nothing remotely like this state was ever observed prior to the introduction of flailing, even in equally hot dry summers. It is due to the plants' lack of vigour after repeated flailing and dehydration of the unprotected hedge. Even bracken is less flourishing this year.

Not a single bird seen in the lane hedges along the survey mile this year (walking the full

length four times daily as usual). Even the corvids have deserted, except when an animal is killed on the road. In the house garden adjacent to the lane have been seen this year a pair each of hedge sparrows, goldfinches and bullfinches, four greenfinches, two thrushes and a few wrens, blackbirds, robins, house sparrows, chaffinches, great tits, blue tits and starlings, with now and then a chiff-chaff, willow warbler or goldcrest. The bird count at the house has fallen steeply since the sudden influx when flailing began, and is now well below its pre-1972 count, when annually, for instance, three pairs of song-thrushes nested here. All bird species still remaining in the garden have reduced to about a third of their pre-1972 numbers here, while about twenty other species in the original survey-mile list, eg linnet, marsh tit etc, have vanished also from the garden. In 1982 a sparrow-hawk was seen for the first time at this garden, having rarely been seen, and hunting only along the hedges, prior to the flail. Its visits have become more frequent and damaging, while magpies now frequently raid the garden for nests.

The problem is increase in predators coinciding with sudden decrease in prey. Sparrow-hawk numbers have risen since legal protection (and locally since one or two pigeon-fanciers, who, I hear, took the law into their own hands, have died) and magpies have greatly increased since the flail, but there are no longer any populations of songbirds in the hedges for them to hunt so they are repeatedly robbing small survival pockets. No magpie seen foraging in the survey mile hedges since 1979. Occasional kestrel still seen over margins of sallow marshes nearby, but never over road hedges now.



No butterflies or moths seen in the survey mile this year other than, rarely, the odd hedge brown, speckled wood or small white butterfly, and one or two silver Y moths, just fluttering by on the way to somewhere else. Very few insects have been seen at all. One bumblebee (*Bombus terrestris*) was observed one day, the only one this year, aimlessly buzzing along the barren hedge-bank and finding no flowers. Saw one slow-worm, the first since the 1972 massacre, rather confusedly squirming in the road. Can't imagine what it will find to eat, but I put it back into the hedge on the field side whence undoubtedly it came.

That single bewildered bee has finished me. People have got to listen now. Came home and started putting together a paper reporting, in a condensed, simple form, what has happened to these hedges since the day the flail arrived.

September 6th. The council has today again flailed the hedges, just in time to prevent from seeding the few flowers which had managed to make belated growth, and with no justification for trimming at all on visibility grounds (which they never did have anyway). All that was protruding from the face of the hedge this time was a handful of little dry heads of betony, cat's-ear and yarrow 6 or 8 inches high, short whiskers of brown grass, flat sheets of ivy and prickly brown mats of gorse and brambles never more than 6 inches deep at any time. There is not even the excuse that cyclists might complain of brambles, as these are stunted by the flail and don't grow whips any more. Before the flail, we used to stop our bikes and break down the occasional bramble whip that traffic had not bruised or the road-man had not yet nicked off in passing, for the sake of those who came after us. You seldom saw a bramble left sticking out and there was no question of destroying the summer flowers and the wildlife for that reason.

This prevention of flowers and seed has now been carried out consistently for so many succeeding seasons, it is evidently done without consideration for the state of the hedges, amount or type of growth, dryness of season, or any other rational reason. It can't be ignorance, after

the number of people who, ever since the first flailing, have pointed out to the council (in no uncertain terms) the appalling results of what it is doing. This has the appearance and effectiveness of a deliberate policy of extermination, but is perhaps just a case of the municipal mentality treating hedge-trimming the same way as street-sweeping. Can't have all that nasty litter of flowers and butterflies and seeding plants making the countryside look untidy.

1985

January. West Cornwall has always been a vital winter station for migrants fleeing the cold weather further north. Loss of food supplies here is fatal to their last chance of feeding in this country. This winter of 1984-85, thousands of redwings have perished because the flailed hedges



AMONG THE MISSING. *Silverweed.*

are barren of wild fruits and invertebrates and provide no real shelter. Many birds were seen dead along the roadsides. No redwings have been seen foraging in the field or road hedges under observation, where prior to 1972 large flocks used to be busy during frosty weather. Alongside the survey lane, in the house garden which, itself enclosed by Cornish hedges, contains many of the same species as the original pre-flail lane hedges, a group of seven redwings rode out the snowstorms without artificial feeding and not one of them died.

During this cold spell the flailed hedges have shown frost-wilt and damage. The end of the survey hedge at the house where flailing has by request been suspended since 1981 is notably better-protected, while the hedges round the rest of the house garden showed hardly any effect from frosting, and hibernating snails in the crevices were inspected during the freeze and found safe and well. None was found in the flailed area of the survey hedge, on either side of the road.

Some excellent letters appearing in newspapers following an article in *The Western Morning News* about my survey (based on my report, not written by me). One person complains - as who doesn't? - "One writes letters to County Hall and gets no reply. One rings up the District Council and is told they are not responsible..." (*WMN* 26 Jan).

February 5th. Wrote to Cornwall County Council, asking if they will consider not flailing this area this year. An impeccably polite letter, I may say.

February 28th. Wrote again, as no reply; this time offering to send a copy of my report.

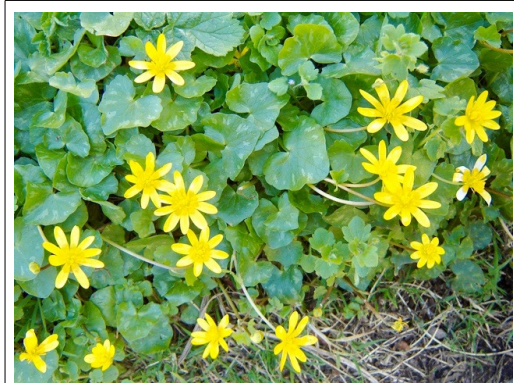
March 6th. An unsatisfactory reply from the council saying, in effect, that they intend to go on exactly as they are; but at least they are prepared to leave "a suitable area of verge uncut". Apparently someone has forestalled me by forwarding my report to them.

March 7th. 'MANGLED HEDGE CHARGE DENIED' headline in *The West Briton* today. Deputy surveyor quoted as saying there was good liaison between the council and conservation

groups, and that in general they approved the county's policy. Judging by the poor response I've had from such groups, that's not much comfort. He added that the criticism tended to come from individuals. You bet. (And that's the first public admission that people have indeed complained.)

March 11th. The flailed hedges have dried out after only a week of fine weather. Recent falls of stone along the survey mile have still shown the core of earth pouring from the gap as a fine, desiccated dust. The winter's rain only succeeded in wetting the outside of the hedge, which soon dried again when the sun shone.

This month's count of herbaceous plants visible in the survey hedge has produced a total of 63 species (64 counting the Japanese knotweed). Of these, nine are seriously reduced since last year, eleven are scarce, nine are very scarce (fewer than six plants) and three are represented by one specimen only. Four are increasing rampantly and only seven survive relatively unchanged in the areas of hedge not yet taken over by ivy or heliotrope.



DISAPPEARING. Lesser celandine. Over 50% died of drought last year.

This count shows that well over 100 herbaceous flowering species have disappeared from this hedge during thirteen years of flailing, an average of 8 or 9 species per year, a loss of approaching two-thirds of the original population and including all the less common ones. 4 shrubby species (broom, elder, native privet, burnet rose), 2 ferns, roughly 65 mosses and 20 grasses have also been lost since 1972. Of the remaining 64 herbaceous flowering species, 30 are now acutely threatened. A dozen of these are likely to vanish this year if nothing is done to alleviate the situation, especially if it should be another dry summer. All but twelve of the other 34 are reduced to a shadow of their former population and steadily failing.

Of these twelve tolerant species, seven are relatively unaffected, two (Japanese knotweed and winter heliotrope) increasing dangerously, and three others (rosebay willowherb, montbretia, three-cornered leek) looking likely to do the same.

1 (Japanese knotweed) is never touched by the flail.

5 (wild arum, hairy bitter-cress, winter heliotrope, pignut, three-cornered leek) have early growth, flowering and seeding, so are not immediately affected by the flailing.

2 (bell heather and wall pennywort) survive due to drought tolerance but both look miserable.

1 (white clover) with a tenacious creeping rootstock remains at hedge foot.

2 (white violet and rosebay willowherb) grow on an un-flailed part of the hedge-top, at a section of massively-built hedge on the cottage corner less prone to drying out than the typical hedge.

Lastly, one (common sorrel) takes the prize for the most enduring species in the path of the flail, though not flowering well.



SURVIVING. Common sorrel. The most enduring species so far. (Photographed in 2007, hence healthy appearance.)

All other surviving species are seriously reduced since the original count in 1971-72, typically a loss of over 95% of their number of plants. The following are still decreasing steadily:- heath bedstraw, creeping buttercup, red campion, cat's-ear, cow parsley, common mouse-ear, sticky mouse-ear, cleavers, dove's-foot cranesbill, common daisy, dandelion, broad-leaved dock, foxglove, ground ivy, autumnal hawkbit, soft rush, sheep's-bit scabious, sheep's sorrel, common heath speedwell, germander speedwell.

The following have lost more than 50% of their surviving numbers since the May flailing last year, one, bluebell, due to the physical damage. To dehydration following flailing:- betony, lesser celandine, creeping cinquefoil, ribwort plantain, common violet, woodsage, yarrow.

Fewer than 10 specimens:- wild carrot, common chickweed, smooth hawkbeard, umbellate hawkweed, herb robert, black knapweed, black medick, nipplewort, hogweed, creeping thistle, narrow-leaved vetch.

Fewer than 5 specimens:- hedge bedstraw (3), cut-leaved cranesbill (4), common figwort (3), field forget-me-not (2), common rampion fumitory (2), milkmaids (2), spear thistle (4), tufted vetch (2), white sweet violet (2).

One specimen only:- groundsel, primrose, pendulous sedge.

Absent this year:- knotgrass, rayless mayweed, spotted medick, great plantain, silverweed, greater stitchwort, lesser stitchwort, tormentil.

Stitchwort formerly starred almost the entire face of these hedges, mingling with the other flowers during March to June. This year in the survey mile not one plant of either greater or lesser stitchwort is to be seen. In the hedge of the road which joins the survey mile at the old cottage corner junction, just two specimens of greater stitchwort are in flower, 23 feet apart, in a 'better' section (half-dead grass not yet overrun by ivy), the only stitchwort plants to be seen in road hedges in this area.

The surviving species owe their perseverance to one or more of the following circumstances:-

- Hugely abundant to start with.
- Drought-tolerant.
- Early-flowering.
- Creeping rootstock at hedge foot.
- Growing on hedge top where neither council nor farmer has yet horizontally flailed.



AMONG THE MISSING. *Lesser stitchwort.*

The common polypody is the only fern holding its own, due to its drought-tolerance and its creeping habit with very small crowns between the stones towards the tops of the hedges where there is less competition. It is increasingly threatened by ivy-spread. Black spleenwort seriously reduced, hart's-tongue very scarce. Broad buckler fern and male fern have almost disappeared and lady fern and scaly male fern have gone. Other than polypody, the only fern survivors (mainly small mountain male fern plants) are growing in pockets or in such other rare positions where the growing crown of the fern is missed by the flails. About

half a dozen stunted specimens of the two larger ferns, male and broad buckler, struggle on, all told. Just one specimen of male fern which is set in a little corner right back from the road where the flail does not reach has continued to grow normally, though with somewhat smaller fronds than usual due to dryness.

Large areas of hedge at frequent intervals now contain nothing but ivy, bracken, brambles and half-dead stunted gorse, with the shrinking areas in between mainly composed of half a dozen tough and prolific grass species in poor condition - common couch, rough meadow grass, cock's-foot, Yorkshire fog, slender foxtail and the infamous onion couch, with rye grass in the field gateways. These grassy areas are sparsely populated by the remaining, most tolerant, herbaceous plants. There are frequent dry earthy flail scars where the machine has bitten deeply into the turfy parts of the hedge or torn many stones away from the face, and in these places nothing grows.

The problem of ivy spread is becoming acute. Many places along the hedge now admit no other plant for twenty yards at a stretch, as the original sources of ivy fan out and join up. The longest unbroken stretch of ivy is on the south-facing hedge at the western end and reaches for 78 yards, covering the hedge face from top to bottom where more than a hundred different species used to grow. Common sorrel and wall pennywort are the only two flowering species that persist in growing through the ivy for a while, with a little red campion at the outer edges, but as its growth becomes denser they give up. Only bracken continues to grow through the ivy in any quantity.

March 13th. Meeting today with the divisional surveyor who came to look at hedges with a view to allowing four places for minimal trimming this year. Hope one of them will be the survey mile.

March 26th. Another article has appeared in *The Western Morning News*, firmly backing my report and carrying quotes from Cornwall County Council including statement that they have liaised with the CTNC [Cornwall Trust for Nature Conservation, later changed to Cornwall Wildlife Trust], and from CTNC saying somewhat otherwise. Useful opportunity to fire off another letter to the paper.

April. This year goes sadly down on record for the loss of violets. The common violet has suffered as predicted and last summer most of the plants died of drought due to the repeated flail-removal of protective growth and resulting extreme dryness of the hedge-banks. This is the more alarming as until last year it was one of the very few attractive species still struggling to hold its own and succeeding better than the others.

An exact count of the remaining violet plants has been made this month. In the 12 yards of hedge at the house end of the survey mile, saved from flailing since 1981, violets appear in their usual abundance, 90 plants being counted here. In the whole of the rest of the survey mile, counting both sides of the road, only 420 plants were found. This means that 12 yards of the flailed hedge contain on average only 6 plants, a loss of over 90% of the violet population in one year. This count confirms the visual appearance (or rather, disappearance) in the flailed hedges, where violets are now few and far between.



DECIMATED. Common violet, 90% loss during summer 1984.

This is not only a loss of one season's flowers but outright death of long-established plants, many of them having formed patches over a yard in breadth. I watched them wilt as the surface of the hedges dried out (the core now being permanently dust-dry), then turn brown and die when no rain came in time. When the rain did come I watched to see if they would sprout again, but none of them did. The survivors are in positions where for some reason the hedge retains a little moisture - more massively built, or with damp rising from springs beneath, or with shade from a surviving bush, or with the field-level high behind the hedge - but even in these places most of the plants died. The short length of hedge where all have survived does not have any of these advantages, the survival being entirely due to the protection given by normal summer growth since flailing ceased by my request on this piece of hedge.

So the long vigil ends. Have been getting replies to some of the letters I sent out with my report. A cautiously friendly response at last from CTNC which is as much as I could expect. Understandably they might be unhappy about a non-Trust-member exposing such a colossal disaster that has gone on under their noses. I think they may now have begun making polite noises to the council and they are afraid my making a fuss will put backs up and queer the pitch. I cheerfully respond that there is nothing like a sniper to encourage a parley with the main body of artillery - in other words, I'm not going to shut up. Apart from anything else, putting this in the politest possible way, I know what I'm talking about and they don't.

Nonplussed by response from the various wildlife enthusiasts. They seem not at all to appreciate the gravity of the situation, really almost cavalier about the appalling losses as if they think nature is a bottomless purse to be abused at will, and their main interest in my report is the object of adding species to their records. This never even occurred to me - it seems to me like train-spotting while Rome burns. They do kindly suggest people to pass it on to (we're all used to buck-passing, but it's not so good when you're the buck that's being passed), but they seem purely concerned with discussing whether my identifications are accurate. The mind boggles at what would have happened if I'd published the whole list. If they get all het up about whether the spotted deadnettle really was *maculatum* (which it was), they'd have had paroxysms over the butterflies. This butterfly, or that, breeding in hedges? Oh no, you must be mistaken.

The trouble is they assume they know more than I do, and I don't want my work called into question by silly wrangles over rare species or whether certain butterflies only breed in certain places or really were to be seen along the roadsides. Even my condensed report, avoiding anything I thought they might see as 'controversial' (because the people who wrote the textbooks seem never to have looked into a Cornish hedge in their life, and would probably think of it in the same bracket as an English hedgerow), has resulted in my having practically to shriek out loud that it couldn't matter less whether the odd rarity was there or not, what matters is that the commonest species of all are disappearing. When even silverweed gives up on the habitat, good grief, what hope for any of the butterflies, let alone the scarce ones?

To my dismay I find that the fate of the vital indicators of general habitat health seems to leave the experts cold, compared to the burning question of whether or not I know a spotted deadnettle or one butterfly from another when I see one. If it were not so unbelievable one would have to conclude that the hedges and the common wild flowers and insects don't matter much to them. Perhaps it has never occurred to them that the hedges in Cornwall comprise habitat covering everything from bog to mountain scree, and contain actual original material and species from the virgin land on which they were built. They may find it hard to



AMONG THE MISSING. *Tormentil*.

accept that they have been stupidly overlooking a vast diversity of species which have - or had, until the flail came - been there in that very hedge for anything up to 6,000 years.

They also have an unfortunate idea that the hedges are 'corridors', conjuring a comforting vision of all the wildlife gaily running along them to colonise other habitats (what other habitats?) so maybe they think it can gaily run back again between flailings. Where is it going to run from? Every hedge in Cornwall, where the vast majority of the wildlife was settled, has been decimated, its inhabitants wiped out. These people seem unaware that the hedges are not merely corridors to habitat, but are the habitat, and in most areas the only one left. They seem not to realise either that most wildlife, animal or vegetable, is not itinerant but virtually static, localised often to within a few feet, for generations, and spreading out, if at all, only very, very slowly. The hedges are a close-knit community network, and only incidentally a highway.

Further, these people seem quite unaware that many of their 'rare' species were not rare at all in the hedges. I had no idea that the things I was seeing there, day-long and year-round, might be unknown in that context to professional naturalists; who (I now suspect), not living with hedges as I do, saw them only as something to drive past on the way to the textbook sites and reserves. One botanist actually said to me "Oh, the hedges only have common things like bluebells in them." This is hard to believe, but I must say it's revealing when they query species that were rioting along so many hedges before the flail - purple ramping fumitory, for instance, of which there were two or three dozen flourishing plants along the survey mile in 1972, or grayling butterflies, which were as numerous as ringlets or wall browns. I am shocked by the blatant admission of not caring a hoot for the wild flowers unless they're rarities. This flabbergasts me, as I have no interest in things on rarity grounds but only for their life and beauty, so I had no idea that some of the things I was seeing were "not supposed to be there" - a favourite phrase, I find. Evidently the plants and the butterflies didn't know it, either. It must be because, unlike the specialists, they hadn't read the textbooks.



AMONG THE MISSING. *Rayless mayweed.*

Having had my attention drawn to these curiously obsessive recording activities, I find that by the evidence of the pattern of the records, the map showing busy little concentrations of dots at all the popular 'wildlife sites' (probably multiple sightings of the same individual plant or butterfly) and acres of white space between, no-one has ever really bothered to investigate the 'ordinary' farmland and lanes that make up most of Cornwall's landscape. Clearly recorders prefer to go to the special sites - the coast, the woods, the marshes - where they hope to see goodies. These places hold interesting species but usually have much less diversity than the equivalent area of typical Cornish hedge with its wide assortment of inhabitants, often differing radically in their requirements but living literally side by side in the hedge's varied zones and mini-habitats. Why travel half across Cornwall to see a species at a special location when it can be seen in hundreds of hedges? - or could, before the flail arrived.

I am finding the response from the conservation bodies (both local and national) equally bemusing, typically, "Yes, we suppose there might be some disadvantage in the flailing, but there are probably benefits as well, and it would be hard to pin down scientific proof so we are not quite sure what to do about it or whether anything does need to be done." They seem to have no comprehension of the damage. Even those who give the proviso that the timing of the cut should be right seem to have no idea of the inherent problems of the flail itself. They even trot out that worn cliché, as if there were some virtue or expertise in applying the maxims of the suburban garden to the intricately complex and delicate microcosms of the Cornish hedges, "It returns a mulch to the hedge." I have had to tackle that one, as proposed by the council's spokesmen, time and again. Yes, it does, and what a disaster their beloved mulch is. The very

last thing the wild flowers want is a nitrogenous green mulch enriching the soil. There seems also to be no realisation that the lovely mulch contains the last pulped remains of the little lives still struggling to survive in the hedge. And by the way, the suburban gardener would be ready for a strait-jacket or a padded cell if he mashed up his display of summer flowers and all his pollinating insects to make his mulch.

I can only conclude that these people have never actually studied or even considered the hedges (which they tend to refer to inaccurately as "hedgerows"), and most of them seem to have no idea how nature works. This begins to explain why none of them came out yelling when the flails first hit, a silence I found so strange and frustrating. Apparently they did all assume that hedges were only full of common things, so sped past them on their way to the small 'honey-pot' sites - ignoring the staggering 50,000-acre honey-pot that was the aggregate of Cornwall's hedges with so much of the county's original wildlife preserved and concentrated in them. "Never assume," as my mother always warns, so wisely.

I'm afraid it begins to occur to my previously innocent mind that there might be some anxiety to play down my report, as it doesn't exactly bestow credit on anyone who sat back without a murmur and watched the catastrophe happen, seemingly too ignorant to understand its effects or its magnitude, too arrogant to listen to the public and too proud now to admit to the blunder. I will add that there may be the odd exception to these uncomfortable remarks (though I haven't yet met them), which in any case are only my personal opinion based on what they have said to me and what appears to have happened.

Meanwhile, CTNC is organising a study of Cornish hedges to see what they can find out. Too late, far too late. They surely can't help backing me now, but I wish they'd done so in the first place, and likewise the RSPB and the rest. It's too easy to think that if they had all taken notice of what ordinary people like me tried to bring to their attention, by their combined weight they might have been able to prevent this tragedy - but perhaps not. It really has seemed as if nothing could stop that terrible machine, with so much money invested in its invention and production and purchase, when even the articulate and almost unanimous weight of rational public opinion couldn't do it.



AMONG THE MISSING. *Greater stitchwort.*



DISAPPEARING. *Narrow-leaved vetch.*
Only 6 plants left.

May 13th. Have been getting a lot of support from people who all say the same - they have been complaining for years about the flailing and getting no joy. A letter this morning is absolutely typical, a craftsman stained-glass restorer who says he has complained in writing to the council a number of times and contacted the CTNC, and both have always maintained that species are not harmed by the flailing. Says he knows they are wrong but doesn't have the proof, so would like a copy of my report. Another was a farmer's wife concerned about the adverse effect on the tourist trade as well as the wildlife. I'm bankrupting myself by sending the report out to all and sundry, asking them to photocopy and pass copies on, and by this means it has evidently already gone far beyond my ken like a grown child from its mother. I'm getting really heartening letters of support from strangers, in various walks of life. Not one dissenting voice so far.

I wish the wildlife people, conservationists and organisations on the whole would give me some hope that they might actually do something. They respond mainly with platitudes and I get the impression they may be reserving judgement as to whether they can believe me. I should have thought anyone who simply glanced at a flailed hedge out of the corner of their eye would know the truth, as long as they understand the basic ways in which nature works (but I really begin to think they don't). The trouble with societies and committees is that they tend to be made up of people who like being in societies or on committees, but whose actions may rely on advice from experts who have their noses down to their particular 'discipline' and sometimes have little conception of the broader ecological picture; and then, the person who speaks for a group has to be so diplomatic and cautious that no-one takes any notice and nothing gets done. Glad I'm a lone ranger and can say what has to be said, not just what's politic.

June 6th. The local newspaper has a front-page banner and editorial comment on my report, and boy, have they gone to town on it? I know I said institutions have to be politic and I don't, but they've said the things I have nobly refrained from saying. 'Town hall vandalism', 'municipal maniacs', 'all the finesse of Attila the Hun' and 'the ferocity of a madman's attack [on the hedges]' are among their choice phrases - music to the ears. Unfortunately they left out my remarks as to the helpfulness of the divisional surveyor, who is a nice man, and they misquoted a figure rather badly, so am writing to next week's edition to put the record straight - and keep the pot boiling.

June 7th. This afternoon the county surveyor rang me up to let off steam (for one full hour by the clock). He says his phone has been ringing continuously since *The Cornishman* came out yesterday morning (and, implied, he's not half been getting an earful when he lifts it). It seems the populace, encouraged by the editor's choice words, has risen as one and is expressing itself to equally good effect - the repressed anger of years bursting out at last. The voice at the other end of my phone expressed itself to not very good effect, but eventually I got him calmed down and he ended up more or less crying on my shoulder about a county surveyor's lot being not a happy one. I hope he did realise in the end that I am not crazy, vindictive or unreasonable, just broken-hearted.

During the rant he let fall that the twice-yearly - sometimes thrice - scalping we have endured is in contravention of the council's policy and has been done *by mistake*. Whether or not this is so, words fail me (well, not quite). It would only replace the charge of ignorant fanaticism with one of utter incompetence. Surely at least you would think the volume of complaint should have caused them to discover the error? Still, I can't help thinking I have scored, at last. I believe this is the first time anyone has breached the wall of the ivory tower and actually got a response from the fountain-head. And what a response. Oh dear, oh dear.

July 8th. Wrote to the divisional surveyor to thank him for his co-operation in helping South-west Television to get film of the flailing in progress, and apologising for dropping on him at a moment's notice. Not really my fault. Admittedly, I did suggest to BBC Television that they might like to do something, but in the end they decided not to. TSW apparently got wind of it, and dropped on me out of the blue. Really a pity as so many offers had come from people wanting to do something by way of a demonstration that we thought it would be a good idea to get everyone on telly to say their bit. In the event half an hour's notice wasn't enough to get them together so it had to be me, looking a bit unkempt and feeling intensely disinclined (being rather a retiring person) but I appeared quite composed, much to my relief when viewing the result; stiff with fright, actually.



July 1985. Television crew filming flailing near Gulval. Solid ivy on this once-lovely hedge - as I was not slow to point out.

CTNC is now at last saying that the flailing has adverse effects - quoted as stating that "the number of species has definitely decreased ... we are trying to get at the facts and figures. It's worrying." (NB I've given them the facts and figures.) They think that "in some instances the flail has been set too close." (*Western Morning News* 5 July.) I foresee they may have some difficulty in getting away from the idea that the flail can be somehow beneficial and that all that's wrong is the timing and closeness of the cut. Of course these make a huge difference, but there is still no getting away from the murderous and degrading nature of the flail, the unacceptable slaughter of the innocent and the lasting corruption and destruction of habitat. For my own peace of mind I have struggled to discover something - anything - not quite so bad about the flail, but have only

succeeded in proving by long-term study that there is not a single good word to be said for it. In the effects I have observed it is wholly and utterly disastrous.

Have had a visit from a respected local botanist who has been very helpful in confirming my identifications and updating nomenclature, but astonished me by some of the ones she queried, really well-known species once abundant along the West Penwith hedges, trotting out that phrase so surprising to someone like me who has studied the hedges rather than the literature, they "ought not to have been there." (Such a pity no-one told them that - but for their foolish ignorance they wouldn't have got themselves exterminated). This judgement seems to be based on what the books say about hedgerows (not Cornish hedges, which are a very different proposition regarding habitat) and on whether or not the plant has been recorded for this 'square' on the map; but when you look at the honey-pot dots that no-one has ever looked at any area such as this of farmland and country lanes.



NEARLY GONE. Tufted vetch, reduced to only two plants.

Granted, there were a couple of dozen of the plants in the hedge at the old cottage site that don't grow anywhere else in the vicinity, and I know where they do grow. Clearly, lady's bedstraw, greater knapweed, kidney vetch etc were brought home from seaside visits, but they were still growing in this hedge more than a hundred years on. Maybe the cottagers knew enough to dig in some sea-sand or lime-mortar when they made a place to plant these things; or maybe the localisation of plants is as much to do with unbroken succession from originals (as it appears from how persistent most used to be in normal Cornish hedges before the flail arrived) as with soil preference, and in some cases they may be more tolerant than they are thought to be. The point is that they were there and the flail has destroyed them, and a slice of history along with them. You are not likely to read in a book which wild flowers people used to cultivate, beyond the obvious primroses and forget-me-nots, but you could read it in many Cornish hedges before the flail came to wipe out the living record.



NEARLY GONE. Cut-leaved cranesbill, reduced to only four plants.

Somewhat to my surprise my botanist says it will be perfectly all right to add species I definitely remember being in the hedge but which were not on my never-completed original list. Usefully she confirmed two of the vanished species' identifications, very doubtfully received by another recorder; the spotted deadnettle (*Lamium maculatum*), which I brought home and planted in my garden when the flail tore out the last piece, and the purple ramping fumitory which she readily identified from a drawing of it I showed her. The recurved pedicels clinched it.

It seems if you're a housewife with no paper qualifications, people really do assume that you don't know A from the track of a duck, as my old mother-in-law used to say. If they stopped to think, they might see that a person who runs her own life has better opportunity for solid study, quiet thought and achievement than one who goes in for a career; the very word 'career' suggests it.

August. Still getting lots of fan mail. One man sends me a quotation from King George VI: "The wildlife of today is not ours to dispose of as we please. We have it in trust. We must account for it to those who come after." The trouble is everyone seems to think so except those few who are actually in the position of ordering the vandalisms and massacres to be done. The council protests that the benefit of wildlife is balanced in their equation, but if they really do think so their ignorance must be monumental, absolute, total. Surely even kindergarten children know how seeds work, and that caterpillars in this year's plants are next year's butterflies?

Anyway the public roar of applause following *The Cornishman's* Attila-the-Hun remarks is still reverberating, and people who recognise me from my brief appearance on television keep stopping me in the street to say thank you. No-one has thrown a bad egg at me yet, which is very gratifying. It's good to have so much confirmation that 'right is right, and wrong is no man's right' - and that, as we all knew, it was a downright lie that as many people liked the flailing as complained of it. I believe the actual truth is that the council must have known from the first universal howl of protest in 1972 that they had done a terrible thing, but having spent X millions of public money on a new fleet of modern hedge-trimmers, of which they were no doubt very proud, they felt unable to admit to the expensive blunder and the only course was to shut their ears and tough it out regardless. Since then they have probably come to believe their own fictions, as wrongdoers tend to do.

My botanist wants me to write an article for *The Lizard* field studies review, which invitation I take to be something of an honour. Have to accept her censorship, of course, and some alterations where I am obliged to bow to her status, for instance she says my St John's wort would have been *perforatum*, not *pulchrum*. I have to put up with this, if it's the price of getting some knowledge to the people who clearly need it, as I am mainly concerned with the numbers of species and individuals lost. As long as it goes in as something, I'm happy; though actually I do, of course, know it was *pulchrum*. I am fussy about accuracy, myself. I don't make wrong identifications, and if I was not sure what something was I would say so. I'm less happy about the ones she has left out altogether (because they "shouldn't have been there"), but have had enough of a dose of having to justify my identifications, which is difficult when the things have gone. I'm told I ought to have collected specimens, and pressed them. (This seems dubious advice to me, as anything I can't identify is likely to be very rare indeed and my whole instinct would be to let it live to cast its seed.) Seeing the experts seem to have so little idea of the once-hedge-abundance of some of the quite common species they have seriously queried, it's clear I can't risk the spring vetch or one or two of the butterflies. They must await their day.

Apart from four short lengths of hedge, including the survey mile, set aside by the divisional surveyor after his inspection in March, which have been lightly and selectively flailed, the rest of this area has been scalped exactly as usual; but I am getting reports from a network of supporters that elsewhere in Cornwall the flailing is much later this year. There have been various effusions in the press about the flowers in the hedges. Rather sad and ironic, as even the least-damaged hedges are displaying a shadow of what they used to contain. I suppose, being the first display most parts have seen since the flailing began, it looks wonderful by comparison to the shaven hedges, even if it is mostly red campion. The CTNC is coming out more boldly now and saying their hedge study this year is confirming the loss of species.

Helped by the wet weather this spring, the survey hedge is looking slightly better, though still very few flowers except at the sheltered eastern end where campion, sorrel, buttercups, cow parsley, a few foxgloves and a little stitchwort have made a brave attempt at revival. Very few bluebells, and the later summer flowers are in desperate straits. Of these, only betony and cat's-ear are surviving sufficiently to notice, in small areas between the ivy and brambly scrub.

The really appalling difference now the hedges have been allowed to grow is the overwhelming tide of bracken and onion couch. Most of the survey mile at the moment is a waving sea of these two as far as the eye can see. Have had to write yet again to the papers as people are saying that stopping the flailing this year has "allowed these rank weeds to take over". Quite how they think they can have taken over in a few weeks, I don't know; but this idea that the flail has somehow been keeping the rank weeds at bay is typical of the state of ignorance people are in as to its effects - and how little they know of how the hedges were before it came.

A very sad loss is the summer display of vetches and fumitories. Only ten plants all told of these (six narrow-leaved vetch, two tufted vetch and two common ramping fumitory, all very stunted specimens) have appeared in the whole mile, at the eastern end. Several common vetch in a little group of seedlings together were obliterated by the wheel of a lorry in June.

November. Survey hedges flailed second week in October, a rank mess of bracken and seeding onion couch; a terrible loss of the autumn flowers and berries that used to be a royal display of purple, gold and scarlet at this time of year. Only two weakly plants of wild golden rod in the whole of the survey mile, where it used to be abundant. This loss is because (like tufted vetch and a number of other species) it seeds late in the year so trimming before November wipes it out.

Still in correspondence with various bodies on the subject of flail-damage to all hedges and verges, not only in Cornwall: Nature Conservancy Council, Department of Environment, CPRE, Prince Charles, MPs, etc. May as well go the whole hog, but it's a bit like betting on the wrong horses; even if they answer, and even if they express concern and admire my report, there is no indication that they will do anything about it. The one shining exception is Peter Melchett who replied intelligently and has written to the council. Either House of Lords' notepaper has galvanic properties, or it was by sheer coincidence that the CTNC received a request for a meeting with the county council within the hour after this letter would have arrived - a request which, I quote, "surprised" them. I think they felt, as had everyone else over the years, that their comments in the press this summer expressing doubts of the flailing were falling on deaf ears, and hence their surprise at the invitation. They have now stated that they are "broadly backing" my report, though I believe their own relevant hedge data may only go back to a survey ten years ago, by which time much of the damage along the roadside hedges was already done.

December 13th. A letter from CTNC this morning about the meeting with CCC, at which, it says, the council was "rather preoccupied by a desire to shoot down your report, which we refused to do, pointing to the fact that there are other studies all of which show a loss of perennials ... We found that they had already started to think that they could get rid of half their

flails and cut well into winter, and make a late start on [less?] important visibility areas." Apparently this should save about £400,000 per annum and has already done so this year just by cutting later (meaning, presumably, cutting once instead of twice in some areas) and leaving some set-back hedges uncut for this season. If a small change has saved that much, then what on earth have they been spending on the whole job? This is adding huge insult to irreparable injury, that they have not only exterminated our beautiful wildlife but wasted such vast sums of public money in doing so.

Yesterday I observed the following in bloom on a hedge not trimmed this year: betony, red campion, cat's-ear, cow parsley, autumn hawkbit, hogweed, sheep's-bit scabious, germander speedwell, narrow-leaved vetch, common violet, yarrow. Only a little one of each, but a tiny move in the right direction. The survey hedge pre-flail used to have all these and more blooming in winter, but has had none since, until this winter when I have seen one red campion with a small flower.

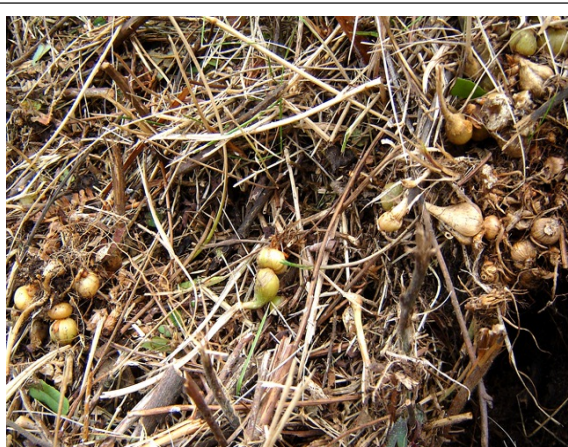


MENACE. False oat grass, known as onion couch (*Arrhenatherum elatius* var *bulbosum*) showing how each separate bulb has roots and will make a new plant.

1986

March. Again, as last year, thousands of winter migrants have died along the barren, shelterless hedges. They have died of starvation and exposure, the weather itself not severe enough to have killed them otherwise. This is a needless tragedy, entirely due to the flailing.

May 14th. Wrote to the county surveyor thanking him for the improvement in the trimming programme and requesting that the survey hedge might receive minimal trimming again this year. The areas that were left untrimmed last year are now showing a definite improvement, at least the most common and robust species that do remain in the hedge have regained some vigour and are flowering more abundantly, if one can use that word when they are still so very far from abundant. Bluebells have made a good reappearance but the plants have small leaves and are not producing many flowers. If left alone this year maybe they'll flower next year. Still very little growth on these hedges, after the cold weather.



RAMPANT. The infamous onion couch. Clump growing on hedge-side at right hit by flails, scatters broken-off bulbs (left and centre) which grow into new clumps.

June 9th. The council has acceded to my request to spare the survey mile again, but the rest of the area has been flailed absolutely to the bone today. The people are up in arms and are organising a petition. I've gladly agreed to take part, though doubtful of the efficacy of petitions as a general rule.

July. Onion couch is flowering, so sent a specimen to my botanist to check identification. She confirms it is false oat grass, *Arrhenatherum elatius* var. *bulbosum*. I've never seen anything like the way it has taken over, like a wicked witch's spell, while all the pretty grasses - the bents,

fescues, hair grasses, etc - have vanished. It has done it despite being prevented from seeding, because the flail smashes up the clumps and all the scattered little bulbs then grow - about the only thing that does seem to survive being hit by the flails; a pretty, gentle survivor (I don't think) like scorpions surviving radioactive fall-out.

The adders have gone from the cottage hedge this year, no sign of them, and their well-worn basking place is growing out with grass. I should think they were starved out, as there's nothing to be seen in these hedges other than the occasional ground beetle - and I mean occasional; one seen so far this summer.

The petitioning has taken ages, most enjoyably, because at every house you had to stay and listen to a bitter tirade against the flailing. The frustration and anger of years has been let loose. We did a house-to-house of this one (large) parish, though it didn't stop there as people got to hear of it and were ringing us all up, clamouring to sign. I must say it was a very happy experience. I found only four people who wouldn't sign, and nobody who had to be persuaded. The other collectors reported the same. The petition clearly asks for a sensible stated policy satisfactory to both conservation and road safety, and the people all agreed on wishing the council to continue trimming roadside hedges, but to do it in the right way, with the right tool and at the right time. The only people who didn't sign were a handful of old-fashioned wives who said they agreed with us but would rather ask their husbands first; some of the farmers; and half a dozen people who said they agreed with some, but not all, of our petition points. 94% of the people who were approached not only signed but couldn't wait to get at it, absolutely snatched the pen from your hand. The little pony without whose short but stronger-than-my legs I could not have got around my section of the parish (or recorded the hedge as consistently as I have done), has had the time of her life; while the people were sounding off about the iniquities of the flailing she helpfully reduced the infestations of common grasses and her summer salad favourite cleavers flail-induced along their roadside hedge.

We are getting reports in from the rest of Cornwall that suggest this is the only area that has been flailed this year, so far, so we have decided to hold on to the petition until we see how things go on. If it was a revenge attack, hopefully it will only be this once.

September. The count of moths attracted to light at the house, plus those seen in the garden, for the past year has reached the grand total of 61 species, most of them from the garden, where numbers are falling steadily due to over-predation by hungry birds and the congregation here of predatory insects which parasitise caterpillars. It is not only the large predators whose balance is disrupted by the flailing. Not more than a few odd specimens of any of the 61 species have been seen, throughout the season, and each night only three or four individual moths have come in to the light. Most of these species feed on deciduous shrubs; about a dozen on coarse grasses or bramble, and the same on vulgar weeds such as dock and nettle. Only two of the species seen this year feed exclusively on a hedge plant, bedstraw (unless they will make use of the related cleavers); heath bedstraw is still present, in very small amounts, in some of the field hedges nearby.

Only 19 of this year's moth species are among the 68 originally seen by day in the hedge itself, while those that feed mainly or exclusively on sallow (which does not grow along the mile of hedges and has remained undisturbed in the locality) are virtually all still present. Subtracting these sallow-feeders from the calculation, about 230 of the species identified at the house lights in 1972 were likely to have been



AMONG THE MISSING. *Ground ivy.*

living in the survey hedges. Of these, 190 have disappeared; that is, only about 16% of the total number of larger moth species breeding in the hedges pre-flail have been able to survive (though in seriously reduced numbers) elsewhere than in the hedges, so far. No moths or larvae have been seen this year in the survey mile hedges despite last year's temporary let-up in the flailing.

October. A letter in the paper from a visitor to Cornwall, one of a group of a hundred on a walking holiday, complaining bitterly of the flailing and saying "If Cornwall wishes to encourage the tourist then for goodness sake stop this annual slaughter." He says they doubt if they'll be coming again, after being regular visitors in past years, as they are so saddened by the loss: "Everywhere we have walked the hedges have been shaven close and in consequence look ugly and depressing ... Gone with the wild flowers are the bees and butterflies also. The once beautiful Cornish lanes are no longer a sight to delight the eye." (*The Cornishman* 9 Oct.) A letter of support (*C'man* 30 Oct) remembers "when the lanes of Cornwall were truly like those of an earthly paradise... I have been appalled at the increasing pace of destruction... repelling the very tourists the philistinism was supposed to attract." The council has to accept that the visitors to Cornwall condemn this practice as bitterly as do the local people - one of whom recently put it very bluntly in a letter to the paper (*C'man* 3 July) when she said "People who damage and deface property are subject to the law, yet this act of unparalleled bureaucratic vandalism goes unchecked."

It occurs to me that anyone who reads this might possibly think I am selectively remarking on the pros and discreetly ignoring the cons, so I will set on record that, except from the county council and one or two voices on local and parish councils, I have seen or heard no defence of the flailing and have met only one person otherwise who thinks he prefers it to be done. Apart from the county council's spokesman (deputy surveyor) there has been no pro-flail response in the local papers to the many anti-flail letters that have appeared. As newspaper editors love a good controversy in their columns one has to conclude that they have not received any in favour of flailing. Of all the people who have written to me or stopped me in the street, not one has been buttonholing me to disagree. It appears that our parish figure of over 90% against the flailing is the general proportion.



"NO LONGER A SIGHT TO DELIGHT THE EYE."

The shaven, silent and half-dead hedges of the survey mile. The weird lopsided thing on the right-hand hedge is the smashed, stunted, shattered and ivy-smothered remains of a once-charming hawthorn tree. Every other bush and tree along this end of the mile has been killed and is entirely gone.

As for the conservationists who imagine there could possibly be "some benefit" in flailing, obviously they are confusing flailing with trimming. Of course there is benefit in trimming the hedges. Unless a Cornish hedge is in a very dry situation it must be trimmed or it will turn into something more akin to an English hedgerow, with a different (and diminished) selection of wildlife and a deteriorating hedge-bank inside the bushy growth - but the trimming has to be done in the right way, at the right time, and with the right tool giving a single clean cut. Using a flail, and especially using it in the active season (March to October inclusive) is, plainly and simply, a catastrophe - and what's more, a largely irreversible catastrophe. Once the original floral seedbank and wildlife population is gone, there is nowhere now for it to come back from.

May. By agreement among the collectors, hoping to forestall another early trim, the petition was sent in to the county council, asking for a proper policy for trimming roadside hedges in the interests of road safety and preservation of the hedge structure and wildlife. The only reply we have received so far, unless it's another coincidence or *mistake*, is that the hedges in this area, including the survey mile, have been flailed tightly to their stone faces a week after the petition went in.

June 11th. We are hearing that no other areas have been flailed yet. It's some comfort to know that we now seem to be a special case. We think we may have a further response to our petition. Item in *The West Briton* today says that the council is devolving responsibility for trimming hedges on main roads to the landowner or occupier. Said to be a Department of Transport ruling and not a county decision, which rather suggests they may have checked up on their position and found this loophole; or perhaps I'm becoming cynical, and it's just another coincidence. The NFU thinks it's the thin end of the wedge, and when pressed by them the council spokesman made mutterings about other counties where the farmers have to do all the roads and lanes, and said that there is "pressure building up within the committee for changes. It's a question of whether the available money is spent on maintaining the road surface or trimming the sides." This sounds like the old saying 'coming events cast their shadows before'.



AMONG THE MISSING. *Soft rush.*

It's a pity, when what the people clearly want is for the council to trim the hedges in a good, sensible policy as they used to do, not to shuffle off the job. What do we pay rates and taxes for? I hope the farmers don't think that if only a certain person had kept her mouth shut they wouldn't be having this extra chore foisted on them. It does look rather as if the council is saying "We've had enough of the angry public, let the farmers take the flak for a change." On the other hand I believe that in most cases the roadside hedge does belong to the landowner, not to the highways authority, so actually the council seems to have been wantonly destroying other people's property

in far exceeding D of T obligations. Maybe they've taken legal advice and found they're on a sticky wicket. Who knows?

At least there is a chance that this will result in a more uneven regime - while the more affluent landowners will probably hire a contractor and keep on scalping, maybe the smaller farmers will be too busy to do it in the height of summer, and among the older ones will be those who know the right time for trimming. We must hope for the best, though unfortunately a lot of farmers have been buying flails (some of them redundant ones from the council, I believe) so some of the ill-effects are not going to improve even if it is done more lightly and at a better time of year. Also no doubt they will be afraid that the council will come down heavy on them if they don't keep on doing it the way it has been done in recent years.

December 10th. The council has come out in the open and proposes that landowners and occupiers are to be responsible for trimming all their roadside hedges. They say this is the general practice nationally, and the reason they give for the change is "spending cuts". The

committee has agreed that (I quote today's report in *The West Briton*) "as a first stage in changing the policy concerning county roads, the county council should be recommended to follow guidelines laid down by the Department of Transport ... [which] would limit the council's cutting of roadside verges to one swathe, unless further cutting was required for highway purposes; limit the extent of their hedge-cutting to the annual growth on the roadside face of Cornish bank structures *to prevent obstruction to the highway or interference with visibility*; and require landowners/occupiers to deal with all growth above the Cornish bank structure" (my italics). In other words, the wholesale scalping of every inch of Cornish roadside hedge and the bushy growth on top, *regardless of whether or not it affects highway use or visibility*, which has been carried out for fifteen years in the face of bitter opposition from the public, has not been in accordance with the D of T policy. And then the committee had the gall to express concern that "the trimming of hedges by individual landowners on a piecemeal basis could reduce the existing standard of roadside trimming and have a detrimental effect on roadside plant and animal life".

All I can say is, they need not worry. Nothing, short of bulldozing the hedges flat, could have a more detrimental effect than what they have been doing. Let us devoutly hope that the individual landowners will reduce the existing standard of roadside trimming.

1988

June 20th. Hedges un-flailed so far, bravely making a little show of campion and bluebells wherever there is a bit of space between the ivy and matted gorse, which latter looks like a lot of green carpets and rugs hung along the face of the hedge. I'm told somebody rang up the county council to make sure they weren't going to start cutting and they more or less shivered in their shoes and said they wouldn't dare lay a flail on this area. Strange: but unfortunately they did say they'd be starting their programme in July, which of course is still completely the wrong time of year. They cannot seem to understand that seed has to set and ripen, that insects have to complete their larval cycle, and that wildlife needs the supply of seeds and invertebrates to remain in the hedge for food through the winter. These people are like the poor little town children who think milk comes out of bottles - ignorant of nature's sources and resources. Nobody could object to their trimming summer growth at blind junctions and passing-places, but I fear their 'programme' still means more than that, despite their publicising, to their own shame, the actual D of T requirements.

1990

July. Last year for the first time the flailing was delayed until October, but this year it has just been done late in this month. Not surprisingly, these later flailing dates have shown up the severe derangement of the hedges as the rank take-over merchants are allowed to display themselves. Now miles of hedge sides are smothered with bracken and onion couch. Winter heliotrope and three-cornered leek are continuing their inexorable spread along the bottom. Wherever these two are not growing, an explosion of hogweed, docks, nettles and cleavers has arisen along the foot of the hedge. The rosebay willowherb, montbretia and Italian arum along the survey hedge are now looking as bad a problem as the heliotrope. The original clump of montbretia, which initially was discouraged by the flailing, has suddenly started to spread and is appearing in new places much as the onion couch did and for the same reason; the corms smacked off by the flails, having taken root where they fall, are now being allowed to show their growth.



RAMPANT. Hedges allowed to grow now finally display the flail-induced infestation with bracken and false oat grass. Total loss of summer flowers from this typical length of hedge.

Luckiest survivor is the white sweet violet, having been overtaken by rosebay willowherb spreading along top of hedge (which being quite high here has not been flailed horizontally) so the willowherb provides necessary shade for the violet's roots in summer. This is one tiny gain in a great loss, as the willowherb, unmolested, is now all along the front of cottage site, around the corner and racing away up the hedge of the lane adjoining the survey mile. Little else grows through it, and the many species of delightful heath flowers that used to grow all over this big, sunny, bank-like hedge are gone. The rampant weeds are spreading faster and looking bigger and healthier as the hedges regain moisture;

except ivy, which seems to be receiving a slight check from the competition of the summer growth.

The hedges look such a ruined wilderness I'm afraid people will start saying the answer is to flail the weeds back. They don't understand that the reason the weeds are flourishing is because the flail kills out the gentler species and continually enriches the soil with the mulch that feeds the gross at the expense of the dainty. If the whole lot is now left to grow and die down in nature's own way, there is at least some chance that the situation will gradually right itself as the big heavy weeds rob the soil of the surplus nutrients, while their dead stems don't re-enrich it as much as the mashed-up green mulch does. It may take a long time. The hedges will never again be as they were, and as long as flails are used for the trimming, any improvement in timing is likely to be offset by weed-spread, mulch-enrichment and the attrition of loss by the flail's impact-killing of insects and other animals.

1993

In 1991 the survey hedge was again flailed only once, in late July, and last year it was left till October as in 1989. During these three years the general condition of the hedge has improved, with a notable increase in the freely-seeding species, and the natural moisture content of the hedge core slowly regaining normality. This winter the last of the sections with persistently dust-dry core finally took up dampness right through.

July 4th. This year the council has at last handed over this area. On May 29th one side of the road (the north-facing side) was flailed by the resident farmer, fortunately a much lighter and more careless trim than that practised by Cornwall Highways Dept, one pass of the flail only, leaving hedge-top bushes untouched and a quantity of growth on the trimmed area, even flowers in bloom



AMONG THE MISSING. Black medick.

remaining in many places, and set-back sections of the hedge left untrimmed. The bluebells were over, and the hedge has made a reasonable recovery from this trim as the weather was wet for three weeks afterwards. Unfortunately, fumitories and vetches making their first significant re-appearance were obliterated and none has germinated since.

During June a much more severe cut was made by a neighbouring farmer along roughly half the length of the other side of the road, towards the eastern end where most of the campion and bluebells now grow. On this south-facing hedge recovery from this cut is poor, due to the hot dry weather. So far, the south-facing hedge at the western end has not been flailed this year. This is the worst section for ivy-spread, but it is noticeable that the outer spread of the areas of ivy is being slowed by competition from the summer herbaceous plants still inhabiting the remaining small grassy spaces between, as these are now being allowed to make their full growth.

Of the 63 species (not counting the Japanese knotweed) that were still visible in the survey mile at the 1985 count, the following 9 were lost during the years 1986-89 when tight summer flailing continued:- large bindweed, common chickweed, daffodil, ground ivy, autumnal hawkbit, black medick, primrose, soft rush, common heath speedwell.

The following are still scarce, with less than six specimens:- wild angelica, dove's-foot cranesbill, field forget-me-not, common ramping fumitory, groundsel, spear thistle.

The whole appearance of the hedge has changed for the better, with healthier-looking plants and a much more normal amount of growth. The following have not increased but are looking better, due to their growth being allowed:- umbellate hawkweed, bell heather, honeysuckle, dog rose, field rose, sheep's sorrel, germander speedwell, greater bird's-foot trefoil, woodsage.

Wall pennywort, which has been one of the more persistent species, is a very good indicator of moisture content. During the extreme dehydration caused by summer flailing the plants dwindled to stunted reddened specimens with undeveloped leaves and flower stems only 3 or 4 inches high. They are once more producing healthy greenish flower-spikes full of florets, now up to 12 inches in height and getting taller every year.



REGAINING NORMALITY. Increasing height of wall pennywort flower spikes indicates return of moisture to hedge core.

A notable resurgence of red campion and greater stitchwort. Foxgloves also are more general, here and there making groups of up to a dozen plants, and like the wall pennywort are producing better flower spikes approaching a more normal height. A number of other species are increasing, notably bluebell, creeping buttercup, cat's-ear, cut-leaved cranesbill, dandelion, smooth hawksbeard, herb robert and narrow-leaved vetch. The numbers are still a tiny fraction of their former abundance but this is the first reversal of the shocking downward trend since 1972.

Ferns have made quite a good comeback, particularly male fern and broad buckler, but hart's-tongue is making a much slower recovery. Lady fern and the beautiful golden scaly male fern have reappeared.

The following 31 flowering species, including 11 not on the original unfinished list but remembered as having been seen pre-flail, have re-appeared (number of specimens in brackets, where fewer than five):- hedge bindweed, large bindweed, night-flowering catchfly (1), wild chervil, daffodil (1), curled dock, water figwort (2), tall ramping fumitory (1), wild gladiolus (1), wild golden rod, beaked hawksbeard, knotgrass, rayless mayweed, meadow vetchling (4), black mustard (2), great plantain, ragwort (2), slender St John's wort (3), devil's-bit scabious, silverweed,

prickly sow thistle, smooth sow thistle, lesser stitchwort, greater stitchwort, English stonecrop, tormentil, common bird's foot trefoil, lesser yellow trefoil, broad-leaved willowherb, hedge woundwort, marsh woundwort.

The incidence of perennials among these comebacks is mainly due to a few specimens having survived at the root (they have reappeared where the last plants disappeared) despite for so many years being flailed before they could make growth.

The St John's wort which was included on the original list, later called *Hypericum perforatum* by the botanist, is now confirmed to be *H. pulchrum* as identified by me. This is the first time it has flowered in the hedge since 1972.

September. Hedge-top shrubs are regaining some growth, particularly gorse and hawthorn, and young plants of these are emerging in some of the denuded parts of the survey mile. The last remaining hedge-top dog rose (*Rosa canina*) has put up a good new stem, and the single bush of small-flowered sweet-briar (*R. micrantha*) has been able to bloom - both these at the eastern end of the mile. Honeysuckle has also regenerated in one area of higher hedge where a little survived on the hedge-top, and the upper part (which has not been flailed for two seasons) has produced a few flowers this year, the first honeysuckle blooms to be seen here for twenty years.

A few small areas of the hedge here and there along the mile are beginning to look quite pretty as some of the remaining species begin to re-establish themselves, though the initial resurgence tends to be red campion and cow parsley and not much else. Even in the best section of south-facing hedge down at the eastern end, the survivors are the more resilient of the May-flowering species which sometimes had a chance to ripen seed before the flail came round in June or July. Once this little flush of campion, bluebells, sorrel, cow parsley and a few buttercups has gone over, the hedges show very little sign of the July to September flowers and are a mass of bracken, nettles and coarse grasses, with hogweed and cleavers rampant at the foot.



RAMPANT. The pall of ivy covering most of the western quarter-mile of the survey hedge. Only bracken continues to grow through the ivy in any quantity, with one common polypody fern still struggling through (lower right). 29 flowering heath species have gone from this small piece of hedge in the camera's viewfinder.

Ivy continues to spread. For about a third of the mile at the western end, where originally heath plants predominated, the hedge face is now covered by an almost continuous pall of thick ivy. (Heath plants are less tolerant of enriched soil and so are sooner eliminated than the predominantly woodland-edge plants at the eastern end.) Only three sections of hedge from 2 - 6 yards long remain where perhaps a quarter of the original population of grasses and heath flowers survives in the explosion of bracken and onion couch. However, at the edge of these small patches of grassy growth, the rate of ivy spread is actually being slowed somewhat as

the remaining tough herbaceous plants such as sorrel regain strength. The only survivor among the original heath grasses is bristle-leaved bent, but the flailing has caused it to form a deep spongy mass through which none of the beautiful heath mosses or the little flowering plants such as tormentil, barren strawberry and heath milkwort could continue to grow.

Brambles have been spreading into wide scrubby patches over the hedge face as the tops

are stunted by the flail, along with blackthorn similarly forced into spreading sideways from between the hedge stones. Before the flail came, blackthorn suckers, gorse and other woody growths coming out of the side of the hedge were taken out by the road-man in winter before they could get a hold. With gorse now also making this matted prickly cladding over the stones, the hedge side has become an uncomfortably spiky proposition when one is squeezed against it by vehicles passing at speed. Before the flail, because the prickly growths were young they bent to one side if you had to take refuge in the hedge, and were padded by plenty of benign greenery. Now they resemble some particularly nasty Mediaeval deterrent.



REGAINED. *Meadow vetchling* (four plants).

The invertebrate population is showing small signs of recovery, just a few slugs and snails in evidence during damp weather feeding on seeding stems of hogweed and cow parsley. Insects are beginning slightly to increase, mainly the more common flies. Some resilient beetle species also seen, and the spider count somewhat improved in the area as yet un-flailed this year, a very noticeable difference as against the May- and June-flailed areas when mist shows up the gossamer. The flailed areas have less than a tenth of the quantity in the (as yet this year) un-flailed. These counts continually indicate that over 90% of the invertebrate life in the hedge at the time is destroyed by each summer flailing. Only the astounding ability of some common species to bounce back has prevented total loss of all invertebrate species in these hedges.

The council seems to have been phasing out the use of herbicides in ditches (a strong point made by the CTNC and also one of our petition points). This year the two short sections of ditch included in the survey area were trimmed in May by trimmer (another machine that destroys everything it touches, but preferable to poison). The operator - probably on his own initiative - left a clump of water figwort to grow. Mullein moth caterpillars later grew to maturity feeding on this plant, the first to survive in the survey area for twenty years, showing the immediate value of selective trimming. Larvae of a few other moth species were seen this year in the survey hedge, notably small elephant hawk-moth on rosebay willowherb, six-spot burnet moth on greater bird's-foot trefoil and small magpie on hedge woundwort. A few common moths seen on the wing, mainly geometrids.

Perhaps as many as six wild bees were seen on any one walk along the mile, and a number of butterflies have reappeared:- large white, small white, red admiral, small tortoiseshell, painted lady, peacock, hedge brown, wall brown, speckled wood, small copper and silver-studded blue were each seen at least once along the mile this year, with one sighting each of common blue, holly blue, meadow brown, clouded yellow and orange-tip, the latter straying into the lane hedge from the house garden for the first time since 1973.

Bird sightings in the survey hedges still nil, though 2 goldfinches, 3 greenfinches, one linnet and one yellowhammer have been seen this year a little to the west of the mile, suggesting some movement back into the flailed area from the refuge they took on the remaining hilltop heathland when tight summer flailing became general in the 1970s. There are very few (perhaps about 5%) left to come back out of the huge numbers that went. The shrunken areas of uncultivated land and the few hedges still un-flailed have been unable to support them, and sparrow-hawks are devastating the low numbers of the remaining breeding populations. There are also more cats than there were ten years ago, domestic and otherwise, though I have actually never seen a feral cat even look at a bird. They spend their whole time in the hedge-bottom after rabbits - and wouldn't you if your dinner depended on it? - the most meat for the least effort. Magpies have notably decreased in number, perhaps partly due to the poor pickings left by flails

along the hedges with their now very low invertebrate populations, but also because people fed up with the increased magpie menace have (I hear) been shooting and trapping them. Unfortunately, in this area at least, the sparrow-hawks and domestic cats, which unlike the ferals hunt for fun, account for more songbirds than the magpies ever did. Sparrow-hawks are being seen to take more than twice as many as cats do from the house garden, including swallows on the wing and thrushes and blackbirds intent on their nesting.

I have heard people say sparrow-hawks don't hunt out in the open sky and can't catch skylarks or swallows, but I have seen them do so repeatedly. They come up from below and overtake the lark as it pauses in its ascent, or plane down after it and take it as it lands; while for swallows they spiral down in decreasing circles from high in the sky, driving all the swallows together like a dog herding sheep, then come down and with the greatest of ease pick one from the middle of the raft.



The bird-watchers don't seem to know what the sparrow-hawk is doing, perhaps because they're all at Hayle lined up along the causeway with their binoculars looking for rare visitors to the estuary, while the hawk raids their bird-table at home - usually sited out in the open so they can see the birds easily (and so can the hawk). Householders who work and play away from home don't see the problem. To be less mobile has its advantages; as the old saying goes, the looker-on sees most of the game. Being on the spot all the time, I have observed the incidence of sparrow-hawk predation, the methods the hawk uses in catching and the species of birds taken. To say that the sparrow-hawk is taking its part in the balance of species, living off the "doomed surplus", is no longer valid. There is no surplus any more, since the flail. The predators, all of which have for other reasons (legal protection, cat doors, peanut feeders, flail-carrion, road-kill) increased their numbers during the years since the flail-induced crash in small-bird populations, are living off the last remaining breeding stock - no longer the doomed surplus, but the doomed core.

Since the flail arrived in this area in 1972 there have been hardly any birds in the hedges, with no food or nesting places left there, the few survivors having hung on in gardens or in the remaining shrunken areas of rough land. The sparrow-hawk now has only these small larders to pick its dinner from, cleaning each out in succession, and each time there are fewer birds left to re-stock the larder. This year all the nesting birds in the house garden have been taken by the sparrow-hawk (witnessed) except one robin, which lost all but one of its fledgling young to the neighbours' cats. Usually the hawk takes the female bird first, having observed her approaching or leaving the nest, then the distracted, grieving male is taken while he is off his guard. When the young female is taken at her first brood as so frequently happens now, not just one bird has been lost to the sparrow-hawk but up to twelve or more, counting the victim's potential young for the year. As small birds normally can live and breed for six years and more, the ultimate loss in numbers from this over-predation can be staggering.

The figure usually accepted as taken by a pair of sparrow-hawks per annum is around 2,000 small birds. Since the flail, probably half of these have been from the breeding pairs in the survival pockets, so the figure for annual songbird loss to one sparrow-hawk pair more realistically should be in the region of 7,000. With the small number and size of survival pockets now typically remaining amid the flail-desert in a sparrow-hawk pair's territory, this is inevitably going to mean goodbye birds - and goodbye sparrow-hawks when too few small birds are left for them to raise their own young. People who blame predators for the loss of songbirds since the 1970s are right, but only half right. The real cause is the flail, which reduces species and

populations by wholesale habitat destruction and food loss until the predation rate is unsustainable.

Before the flail was introduced, the numbers of birds living in the hedges were sufficient for normal survival despite predation, the use of pesticides and the changes in cropping cycles and farming methods. In my own observation, whatever was done inside the field had little impact on songbird populations as long as the hedges provided the essential year-round feeding-ground and refuge. Likewise the predators had little impact while the hedges harboured and fed a teeming population of songbirds.

1994

April 30th. After last year's much lighter flailing, with the north-facing side merely skimmed and the south-facing western end not done at all, the hedges along the survey mile are looking suddenly much better. Noted today 1 painted lady, 1 small tortoiseshell, 2 bumblebees, 1 caterpillar of drinker moth and 2 common lizards (the first seen in the survey mile since 1976, these venturing just outside the house garden where they have continued to live). Ground ivy - one tiny sprig - has reappeared. Ferns looking much healthier and some of the very common mosses reviving quite well. Italian arum looking very poor, hardly any flowers, yellow, stunted and sick - either the cold weather at beginning of April or spray drift from daffodil fields?

May 20th. Blue-tit feeding along the hedge - first bird seen foraging in the mile since 1983. Some sections of hedge at eastern end looking pretty:- cow parsley, bluebells, sorrel, a little greater stitchwort, some campion and creeping buttercup with a few foxgloves, three or four groups having more than a dozen flowering stems. Big increase in grasses looking reminiscent of mid-1970s, three years after flailing began - now three years into less flailing, reversal of trend? Noted, besides the onion couch, cock's-foot, sweet vernal, soft brome, rough meadow grass, Yorkshire fog, creeping soft-grass, bristle-leaved bent, squirrel-tail fescue, annual meadow grass, Italian rye grass, common couch. Barren strawberry, wavy bitter cress and common vetch have come back, one plant of each.

May 29th. During the past week encouraging signs of life noted:- 1 speckled wood, 1 small copper, 1 wall brown, 1 green-veined white, 1 large white, 2 small white; 1 speckled yellow moth, 2 drinker moth caterpillars (and 2 squashed on road) and one of garden tiger feeding on cat's-ear. Woodlice and spiders have taken over extinct bee-holes in permanent flail-scar. Wren picking in hedge-top gorse, the first one seen since 1983. One linnet flying over hedge, swallows hawking along lane between hedges for first time since early 1970s. Common field speedwell, one spindly stem.



AMONG THE MISSING. *Primrose.*

June 29th. Diversity and mingling of floral species noticeably increasing, grasses flourishing. Foxgloves up to 40 in a group. Heath bedstraw increasing. Over the past week the following

noted:- three linnets working on foxglove flower-spikes along the hedge - looking like a miracle. Two great-tits. 1 dragonfly (*Cordulegaster boltonii*), 1 large white, 1 small white, 1 large skipper, 1 common carpet moth, 1 bronze leaf-beetle, 1 beetle *Oedemera nobilis* (male), 1 soldier beetle (*Rhagonycha fulva*), 1 buff-tailed bumblebee (*Bombus terrestris*) and a few bluebottles and other flies.

July 16th. The whole length of the north-facing hedge along the mile flailed, except where set back behind verge, on July 7th. Closer cut than last year and at drier time of year - not good news.

Over the past week, the following were all seen on south-facing side not yet flailed:- 5 greenfinches (first sighting since 1979) and 4 starlings. 2 ringlet butterflies (first since 1977), 1 meadow brown, 1 magpie moth, 1 silver Y. 1 common lizard.

Trailing tormentil and trailing St John's wort have reappeared, one plant of each.

July 20th. The count of moth species coming to house light this year stands at 35. Numbers of moths increased gradually over the past five years since one of the farmers next to the survey mile moved out and temporary tenants since have not flailed the hedges at all. The land has been in daffodil bulbs since 1992, giving a mass of wild flowers in the fields for the past two summers during the bulbs' dying-down period.

The 35 moth species are all among those recorded previously, and nearly all are still the once very common ones whose larvae feed on deciduous trees (mainly willow and thorns), grasses, bramble and coarse weeds. Fewer species every year but a definite improvement in numbers from the rested hedges of these fields, with two or three dozen individuals all told coming in to the house light each night.

Yesterday, July 19th, the hedges of this farm were flailed (including all the internal hedges and the roadside face which constitutes about a third of the south-facing hedge, western end, of the survey mile) in readiness for lifting the bulbs and vacating the land. Last night just one moth came to the light. This is a repetition, though on a much reduced scale, of the result of the 1972 massacre of moths in the hedges at the first flailing.



RETURNED. Common lizard basking on a plank put on top of the hedge to keep cattle in where flail knocking out stones had made a gap as hedge-top sank into the cavity.

July 23rd. Hedge brown butterflies have been emerging yesterday and today, upwards of 2 dozen newly-emerged in the part of the south-facing hedge not yet flailed. Two on the wing in north-facing hedge flailed July 7th. None at all in the south-facing section of hedge flailed July 19th. As the hedge brown seldom flies far from its point of hatching, this illustrates a direct pattern of loss from flailing. There has been a real increase in common insect life this year, but as with the hedge brown little now to be seen in hedge flailed July 7th and nothing in hedge flailed July 19th. No moths have come to the house light since July 19th, showing nearly 100% wipe-out by this flailing of those currently on the wing.

One wild carrot and a couple of plants at the old cottage site that look like a hybrid between greater knapweed and black knapweed have appeared in a new place higher up the

hedge - some movement of plants up hedge-face as moisture has been gradually regained.

August 14th. The remaining part of the south-facing hedge, right down to the eastern end, was flailed hard on August 1st, including gorse where grass emerald moth was seen laying eggs on tips of shoots a few days before. All her innocent effort to no avail - a typical example of how moves towards regeneration are knocked out by the flail.

After flailing on July 19th of south-facing hedge at western end the swallows ceased hunting up and down between that hedge and north-facing hedge flailed July 7th, but still busy between July 7th hedge and un-flailed part of south-facing hedge. After August 1st flailing, no swallows seen in the entire mile. A few flowers are reviving in July 7th hedge now, but only 9 butterflies in the whole mile today:- 2 meadow brown, 5 hedge brown, 2 large white. As a reminder of how pathetic these numbers are, there would have been several hundred of each of these two browns along each side of the mile, pre-flail, on a day like this - and were, that day in July 1972 when I saw them killed by the first flailing.

September. The record of moths at the house lights ended on July 19th as after that day's flailing only four individual moths came in during the whole of the rest of the summer. 13 species were added through the rest of July and August, all of them seen as larvae in the house garden, totalling 48 species for the year, a further fall of around 30% since the mid-1980s. All 48 were among the most common species present in the original 1970-72 count. The number of species breeding in the garden and on sallow is falling rapidly due to over-predation.

The pattern of this year's incidence shows:-

- No moths have persisted in the hedges flailed annually.
- Few species are to be found in the field hedges even after a rest from flailing of several years - only 10% of the total recorded before flailing began.
- Nearly all of this year's adult moths on the wing in July were coming from those rested fields and were killed sleeping in the hedge-side when the flail came round.
- Even when numbers of individuals do rise at a let-up in flailing, the number of species continues to fall as habitat degrades, concentrated predation takes whole broods, and the species with very few surviving individuals are wiped out at the next flailing.

It remains to be seen how many of the young, as well as adults, were lost on July 19th.

[**Note.** In 1995 only 18 species were recorded, 16 of them being those seen 1994 as larvae in the house garden and those breeding exclusively on sallow, suggesting that 30 species, ie nearly 100% of those evidently coming from the field hedges concerned, were lost in the July 19th flailing. Although these hedges have again been almost entirely rested from flailing for nearly twenty-five years - to date, 2019 - none of these 30 species has been seen since.]

2002

July 27th. Thirty years since the flail was first used on this mile of lane. I am still haunted by the memory of the carpet of little broken bodies that day, and the beautiful lost vision of the hedges as they used to be.

There have now been thirteen years of lighter flailing, that is, only once a year, at irregular times (though still nearly always in summer) and leaving usually about 6 - 12 inches of growth on the hedge side, especially where the growth is scrubby. This year the count of wild flower species has risen to 90, including 10 more of those not on the original unfinished 1972 list but remembered to have been then present. At the same time, some species have continued to fail and disappear, and others that reappeared have not persisted.



REGAINED. *Slender speedwell* (2 plants).

The following are absent:- wild carrot, night-flowering catchfly, daffodil, water figwort, field forget-me-not, common rampion, tall rampion, groundsel, beaked hawkbeard, ragwort, slender St John's wort, trailing St John's wort, devil's-bit scabious, common field speedwell, English stonecrop, spear thistle, lesser yellow trefoil. Most of these were mid-1990s comebacks that have disappeared again.

The following have reappeared:- common chickweed, common avens (1), scentless mayweed (1), black medick, mugwort (1), black nightshade (1), enchanter's nightshade (1), scarlet pimpernel, redshank (1), soft rush (1), barren strawberry. Most of these appeared where the ground around the pond was churned up by tractor tyres while the driver was having a go at the Japanese knotweed. The following species not recorded on the 1972 list also reappeared here:- marsh cudweed (1), fig-leaved goosefoot (1), water pepper, toad rush, shepherd's purse (1), ivy-leaved speedwell, slender speedwell, thyme-leaved speedwell, downy willowherb, square-stemmed willowherb.

10 of these 21 comeback species have only one specimen (as indicated in brackets). Wild chervil and common bird's-foot trefoil are also down to one specimen, and others, including the white violet, are dwindling as ivy and rank growth overtake. Heath bedstraw has nearly gone.

The following have increased well:- betony, bluebell, red campion, cat's-ear, foxglove, ground ivy, umbellate hawkweed, greater stitchwort and greater bird's-foot trefoil.

Ferns are looking better towards the eastern end of the mile, mainly male fern with broad buckler and some scaly male. Far fewer hart's-tongue than pre-1972. Black spleenwort and mountain male fern are struggling, as these were mainly at the western end where the once-heathland hedges are now almost entirely obscured by ivy and gorse-matting, with some dense patches of blackthorn and bramble scrub. Even the tough little common polypody is disappearing from this section of hedge. All over Cornwall this flail-induced blanket of ivy and gorse has reduced the hedges to a deadly uniformity, blurring the distinction between heath habitat and woodland-edge habitat. It has covered the stones, hidden the geological variety, obliterated rich moss and lichen communities that had taken hundreds of years to mature, and eliminated basking-places for lizards and butterflies.



REGAINED. *Scaly male fern*.

Over the past ten years the rampant species have reached nightmare proportions in Cornwall, especially on the A and B roads with a verge where the council has continued its one-flail-width trim (not always necessary for visibility), this often being the full width of the verge. Miles of roadside verge and hedge-foot are now a continuous mass of heliotrope or three-cornered leek, with nothing but ivy on the hedge-side. Stands of Japanese knotweed on the

verge have taken over the Cornish hedge behind as well. Montbretia has been spreading fast, new patches appearing where the flail has scattered the broken-off pieces with corms attached. Some older patches extend for thirty feet and more, to the exclusion of all else. This invasive plant has much appreciated the lighter and later flailing which allows it to make full growth and often to flower. Winter heliotrope has appreciated also the long run of mild winters and is no longer controlled by frost as it used to be.

In the survey mile the Japanese knotweed at the old pond has this year been discouraged by a good bashing from an intelligently-directed flail, presumably in the hands of one of the neighbouring farmers. Winter heliotrope is now moving up the hedge face from the verge, but Italian arum is overtaking it and as it does so the heliotrope is the outright loser. The arum even over-comes ivy and is moving up the hedge-side through the pall of ivy there - nothing else growing through it at all. Heliotrope and arum have both crossed the road, first the heliotrope in 1998, then the arum in 2000. Three-cornered leek has exploded in the past few years where the survey hedge has continued to be close-flailed for visibility at entrances and junctions; moving in a mass along the foot of the hedge uphill from the farm entrance at the eastern extremity of the

mile and along the old cottage site frontage at the corner, also westwards from the fly-tipping at the pond.



SPREADING : Italian arum moving vertically up the hedge-side, growing through the curtain of ivy. Note the small advance patch starting higher up to the left. This hedge between old cottage and pond was full, pre-flail, of charming and now scarce species. Not one is left here now.

Hogweed, cow parsley, docks, nettles and cleavers have hugely increased, growing up from the hedge base in front of the mainly ivy-clad hedge-sides. In places the ivy and bracken are being overcome by gorse, as the lighter flailing has allowed the flattened gorse mats on the hedge-side to grow out, much improving the outline and appearance of the hedges but still allowing nothing else to grow on the side of the hedge. Normally a Cornish hedge of this type would have wild flowers on the side, gorse on the top. This is now becoming gorse all over. As the

outgrowing gorse provides bloom for bees, cover and seed for birds and food for some caterpillars, this is at least preferable to its flat matted state or to the neatly-trimmed ivy. At the cottage site a young buddleia has grown from seed or rooted from a piece broken off by flail, about 30 yards from the original tree.

On this inspection (27th July) the following invertebrates were observed in the survey mile:- 1 bumblebee, 1 orb-web spider, 7 funnel-web spiders, 1 garden snail, 2 brown-lipped snails, 1 very faded and exhausted noctuid moth, probably common rustic. No butterflies, and no birds.

August 21st. Butterfly count along the mile today:- 1 large white, 1 small white, 1 hedge brown, 1 wall brown, 1 speckled wood. Also 2 bumblebees.

The moth count never recovered after the field hedges adjoining the western end of the survey mile were flailed on 19th July 1994, and the house garden count has continued to go steadily down. The count at the house lights so far this year has totalled 7 - not 7 species, but 7 individual moths:- 1 oak eggar, 1 common carpet, 2 common rustics, 3 others. Being now so precious these were not subjected even to the slight stress of capture in a glass for identification, but were immediately put outside again. Typically, on any night through June, July and August

this year, not more than three or four moths have been counted in the headlights of a car travelling along the survey mile. This compares tragically with the snowstorm of thousands in headlights along nearly every Cornish lane, including the survey mile, pre-1972. Anyone over the age of sixty will confirm this. Moths have suffered even more than most other species as the adults, sleeping in the greenery on the hedge-side, the caterpillars on the food-plants and the above-ground chrysalids are all killed wholesale by the flails, leaving none to emerge and breed next year. The kill of over 95% of the moths in the hedges at the first flailing never even began to be repaired, and the number surviving in pockets such as the house garden and the old willow plantations has steadily fallen ever since, due to over-predation and minimal mating opportunity. Only one caterpillar (dot moth) has been seen in the garden this year.



NOT WAVING BUT DROWNING. The last bluebell in 30 yards of hedge-bottom, up to its neck in the tide of rank weeds induced by flailing - brambles, nettles, winter heliotrope, hogweed and Italian arum. (Bluebell right of centre.)

The count of 2 bumblebees along the mile is also a stark figure compared to the pre-flail thousands. Like the sleeping moths, feeding bees are rarely able to get out of the way of the flails. In July 1972 at the first flailing I counted 50 dead bees in the mowings along 28 yards of hedge on one side of the road (the south-facing side); this was only the individuals of the larger species which came through the flails smashed but more or less recognisable, smaller pieces being indistinguishable from other insect fragments. So at least 5,000 larger bees of a dozen and more species (bumbles, cuckoos, leaf-cutters, etc) may be estimated to have died along the survey mile in the July 1972 flailing, allowing that there would have been somewhat more along the sunnier side of the road. Taking the usual estimate of 30,000 miles of hedges in Cornwall, roughly 10,000 miles of them along roadsides, this gives a minimal number of something like a hundred and fifty million bees killed in this county alone as the flails hit for the first time - and then people wonder where all the bumblebees have gone, and why they are still declining.



RAMPANT. Flail-induced invasion of hogweed, docks, nettles, cow parsley and cleavers along base of hedge. Short top and sides of ivy and gorse - this no longer looks remotely like a Cornish hedge.

The appalling dearth of insect life at the dawn of this new century forces a gloomy conclusion. Although some of the species surviving in the survey mile multiplied their numbers or reappeared briefly when the flailing was first relaxed, they have since continued to decline despite there now being more flowers blooming in the hedges in early summer than there have been at any time since the flail was introduced. The trend suggests that most invertebrates have fallen far below a sustainable level and are unable to replace all the casualties still lost at each flailing, even though the timing and severity of the cut have improved.

There are still no birds at all along the hedges of the mile. The few that briefly appeared in the mid-90s soon vanished again as the flailing continued as usual. Skylarks have gone from the area and cuckoo, woodpecker and tawny owl are



AMONG THE MISSING. Wild carrot.

rarely heard now. The sparrow-hawks which are seen with depressing frequency at the house garden are now so desperate they are attacking adult jackdaws and wood pigeons (witnessed). Jackdaw numbers are falling - down to only two pairs nesting in the house chimneys now where four pairs nested in 1972. Last year the house garden raised just one young blackbird. All other young and nearly all the nesting adults, including swallows, were lost here to sparrow-hawks and domestic cats, mainly to the sparrow-hawks (witnessed). The last bereaved swallow of the three pairs nesting at the house (a continuous line of

succession since 1980 when a stable was altered to have a south-facing door) deserted when a marauding cat, having already pulled the nest down and smashed the eggs, took its mate from roost on the beam at night. Only one of the pairs, a young couple nesting for the first time, managed to get a brood off (fed almost entirely on horse-flies, other insects being so scarce) before the female was killed by the sparrow-hawk (witnessed) and the distressed male disappeared after his attempts failed to save the newly-hatched young of the second brood. Both partners in the other mature pair, and one of the young from the one successful brood, were also taken by the sparrow-hawk. So four of the six adult birds and potentially 40 young (as each pair regularly produced three broods of five) were seen to be destroyed in one season, cleaning out the colony at this site. This tale of havoc is now typical in this area, since the flail has removed virtually all food for birds, sparrow-hawk included, from the hedges.

[**Note, 2023.** The site has since remained deserted.]

2007



DISAPPEARING. Common violet. Small plant seen here beginning to lose the struggle through the thick, smothering ivy and dead stem litter that builds up on the hedge due to flailing.

April 21st. Common violet plants were counted as before, both sides of the road along the mile, less the 12 yards un-flailed since 1981. This results in a total of 468 plants, subdivided as to their size and health as follows:- two patches 18 inches across; seven patches 6"-12" across; 59 plants 3"-6" across; 71 plants less than 3"; 329 tiny plants with not more than three flowers or in many cases none. Of these tiny ones most are the degraded remains of patches that survived the 1984 drought. Typically one or two of these tiny

roots will be all that is left of a patch which once was around 24 inches across. So although the total appears to register an increase since the 1985 count of 420, it actually represents a substantial decrease in quantity, and the majority are these tiny plant remnants literally hanging by a thread as they struggle to get through the ivy on one elongated weakly stem with a little cluster of stunted leaves on the end.

Two-thirds of the total number of plants are tiny, and half of the remaining third are small, indicating the extent to which the ivy on the hedge-sides has smothered the patches, prevented resurgence and reduced the strength of the plants. The larger plants recorded are all growing on the top of the hedge-bank where thicker un-flailed summer growth has prevented or delayed the spread of ivy. Long stretches of hedge where the ivy and gorse are thickest, twenty



THE LAST of the milkmaids. Only one plant remaining in the survey mile, 17th May 2007.

yards and more at a time, are without any violets at all, and even in the better areas they are few and far between. Before the flail-induced drought-death of 1984, patches of violets a yard across were frequent on the hedge-sides along the mile, and even the smaller plants were often so run-together that a count of individuals would have been impossible.

May 11th. 74 flowering species (excluding grasses and woody species as usual) were counted along the survey mile. This figure is lower than the May 1993 count, despite 15 years of lighter and sometimes better-timed flailing. As with the continued decline of invertebrates, the continued loss of flowering species is due to the radical problems created by the flail type of trimmer. Better timing may reduce the numbers of outright killings, but the induction of rank weed-spread, ivy and scrub-mat and the over-enrichment of soil continue and the ill effects

escalate. The fall in numbers of species and specimens is increasingly due to the degradation of habitat, in which only the exuberant species can make headway.

In the sections least hurt by the years of severe flailing, towards the eastern end, the south-facing hedge has now regained some diversity of the most common species, especially at the foot of the hedge (where the invasive three-cornered leek, moving uphill from the farm entrance at the end of the mile, has not yet reached). Ferns have recovered well, making some quite big healthy crowns. This improvement is directly related to the flail's being set further out from the hedge-face, leaving the crowns undamaged, and to the lighter and somewhat later flailing allowing the hedge's moisture system to operate, especially as there has been no drought year during the period of improvement.

Wild angelica has spread a lot as moisture has been regained, now looking a bit like another umbellifer take-over in the making, all along the soakaway ditch and has crossed the road to the pond site. Narrow-leaved vetch, being the earliest of the vetches to flower and seed, is making quite a respectable appearance and germander speedwell has increased here and there at the foot of the hedge. Cut-leaved cranesbill and herb robert also have increased along the foot, with a little more creeping buttercup showing, while silverweed, ribwort plantain and great plantain are back in force. Redshank and knotgrass which reappeared a few years ago have increased somewhat, as have water pepper and marsh woundwort, good indicators of restored moisture.



LOSING. Foxgloves steadily diminishing in number and size, this small plant being typical of the plants flowering in the survey mile June 2007.

In the survey mile during the past 15 years bluebells, red campion, cow parsley and greater stitchwort have made a recovery in their numbers, but others, foxgloves for instance, that seemed to be recovering quite well by the mid-90s after a couple of years when the flailing was left till autumn, have not maintained the promise. This year there are only 62 foxglove plants in the entire mile, counting both sides of the road, most of them quite small. They are widely

spaced single specimens, only a few groups of two or three and the greatest number growing in a group is five plants. The only group of normal-sized plants is at the foot of a set-back piece of hedge at a field entrance which has not caught much of the flail for a year or two.

Campion does well because its seed ripens quickly and germinates easily, to the extent that many flailed hedges now present virtually a monoculture of red campion. Foxglove plants are more vulnerable, tending to get broken down by passing traffic or people before the seed can ripen. An increasing incidence of foxglove wilt has been noticed over thirty years, when the flower-spire suddenly flops for no apparent reason. When there are so few plants, these factors can affect next year's figures. Less than 20% of the plants are without flower this year (that is, are last year's seedlings) though this does not necessarily point to as serious a shortfall in replacement as it suggests, as a proportion of foxgloves usually go on to flower again in the third year. The numbers do fluctuate quite rapidly depending on whether the hedge is flailed before or after they have seeded.

The more vulnerable species are still in dire straits, milkmaids for example down to one remaining plant, the other lost to tyre-crushing since 2003, and only one slender speedwell, taking advantage of the ditch. That celestial sight pre-flail, the yearly mass of germander speedwell down the gatepost, has slightly reversed its dwindling trend, though still only about a dozen spindly threads of growth. Heath bedstraw, tormentil, sheep's-bit scabious and common bird's-foot trefoil are at risk of disappearing altogether, and bell heather reduced to one damaged clump.

The heath flowers have suffered more than the woodland-edge ones, many hedges of heathland type having changed their nature altogether due to the flail-enrichment of soil. Cow parsley, campion, nettles, hogweed and cleavers invading along the foot, gorse and bramble above, have wiped out nearly all the heath community of low-growing flowers excepting wall pennywort, sheep's sorrel, and the occasional cat's-ear, betony, woodsage, yarrow and umbellate hawkweed. This typifies the long-term loss by flailing: the ever-stronger spread of ivy, gorse and invasive species, the matting of scrub and tough grasses and the annual growth of rank weeds smothering out smaller plants and inexorably reducing diversity. At the western end of the survey mile, where pre-flail the hedges were strongly heathland in character, the loss of heath plants is now almost total. Even at the eastern end, with its damper, more woodland-edge character, there are 30 herbaceous flowering species still absent, including most of the later summer flowers.

The one plant of field rose (*Rosa arvensis*) which has struggled on, stunted and diseased by the flailing, only surviving at all by growing towards the field side of the hedge-top so missing the real brunt of the flails, is now nearly dead. The one remaining dog rose (*R. canina*) still survives on top of the hedge towards the eastern end of the mile, with just a few blooms among the gorse. The hedge top was flailed down fairly hard by the farmer along this section of hedge a few years ago, to thicken the gorse and blackthorn top-growth and discourage



SLIGHT INCREASE. Germander speedwell making a small comeback at last at the foot of the hedge, battling with brambles, rank weeds and heavy grasses in the disastrously-enriched soil.



AMONG THE MISSING. White violet.



STRUGGLING O.N. The first blooms on the wild gladiolus since 1972. Survivors of the one old clump on top of the cottage site hedge.

cattle from breaking through. There is no sign of the one bush of small-flowered sweet-briar (*R. micrantha*) that used to be in this section of hedge - lost to disease and die-back following this severe hedge-top flailing. More than once it seemed the other two roses had gone, but they managed to struggle back to life. Pre-1972 there were 17 good bushes of the field rose and 11 of dog rose along the survey mile, though this was never a particularly rosy area as Cornish hedges go. The widespread loss of hedge roses from flail-battering is just another of the grievous results of this misbegotten, disastrous machine.

The cottage hedge, part of which is on a junction corner close-flailed every summer for visibility, is a sad sight. The white violet, which dwindled steadily over the last eight years as the patch was broken up by stronger weedy growth, has gone; the final loss of a brave old friend. The whole bank, 70 yards long, once such a delight of unusual wild flowers that had survived for 150 years since they were planted there, is

smothered with Italian arum, montbretia, rosebay willowherb and three-cornered leek. The clump of wild gladiolus on top of the bank, which has not bloomed since the first flailing and was not seen for many years has produced two stems with flower buds at last. A couple of the corms must have survived for more than 30 years by managing to make small leaves, hidden in grass, between flailings. In comparison, other known clumps of Whistling Jacks, as this gladiolus is called, the size this clump was in 1972 (about a dozen blooms), in places where they have been left alone have continued blooming annually over the same period and slowly enlarging the clump.

The ancient buddleia, the last of the cottage shrubs, has responded to the flailing over the years by growing out sideways, rooting itself and throwing up a series of bushy growths. The original trunk, now horizontal, is a foot thick, and the bush extends to 27 feet along the hedge - quite a curiosity. Its seedling child, further along the verge towards the pond and not yet touched

by the flail, is growing apace and blooms generously, whereas the old much-flailed tree suffers from die-back, produces a lot of short, weak growths and has few and stunted flowers.

The Japanese knotweed extends for 90 yards along the verge, a movement of nearly three yards per year on average since 1972. It is now being treated as part of the county council's experimental control programme. The main body of old clumps in the defunct pond appears to be relatively inactive, while all around the edges of the pond and along the verge young growth is appearing. It is now right over the hedge and all along the field side, where the council's spraying appears not to have reached. Since the spraying it has crossed the field gateway beside the pond and is spreading towards the east for the first time. It has been observed that spraying may cause the outer ring of growth to proliferate, whereas repeatedly cutting down or pulling the soft stems before the leaves open discourages this younger part first so no further spread occurs during the time the patch is being treated.

Current advice on spraying Japanese knotweed (given that experiments are still under trial) suggests it should be done with glyphosate very thoroughly, both sides of the leaves, in



SURVIVOR. *Buddleia davidii*, forced into sideways growth by flailing. Trunk now horizontal and about a foot thick. hedge-bank infested with winter heliotrope, the advancing patch not yet overtaken by knotweed and Italian arum.

October just before the growth dies down for the winter; though there is some concern that this treatment may cause the deep storage roots to go dormant, perhaps to break out again later. Other sources advise injecting the stems. The obvious advantages of repeated cutting, compared to spraying, are that it is accurately-directed, non-poisonous and non-polluting, and it progressively exhausts the rootstock until it dies. By the third year of this treatment even large stands are greatly weakened and will disappear within two or three years more - but the cutting has to be continued faithfully to the end.

The patch of heliotrope that appeared on the other side of the road nine years ago is now 9 yards long. Another new patch has appeared, now 3 feet across, down towards the eastern end of the mile and a long way from any existing patch. This is likely to have come from a detached crown lodged in the mulch inside the flail-box and then deposited. Three-cornered leek is spreading upwards on the hedge-bank side, as well as along the foot, ousting the bluebells with its earlier and heavier growth. This indicates that the banks have at last regained their normal moisture all the year round, but in this case with unfortunate results as this member of the nightmare brigade is a damp-loving species by origin and previously was at least confined to the foot of the hedge by the over-dryness of the banks above. The only thing to be said in favour of this admittedly pretty (though ill-smelling) plant is that it provides an early source of nectar much loved by bees; but as the survey mile statistics from inspections this spring give an average of one quarter of a bee to 440 solid yards of leek, the dearth of the former and the superabundance of the latter being both due to the flailing, this is hardly a recommendation.

The Italian arum is proving to be the tortoise that beat the hare. While the winter heliotrope continues to spread along the verge, its quantity is now much reduced as the arum, slower to begin spreading in the first place, has quietly accelerated over the years. Following the heliotrope and knotweed along the verge, it has outstripped the knotweed, co-existing happily with it, and has slowly overhauled the heliotrope, eating into it from behind; and in this case of a thief set to catch a thief, the arum is the super-thief, overcoming the heliotrope completely after a while. The arum even grows through the thick ivy. It spreads sneakily by putting up sprouts at a distance from the original clump, then filling in between. Only one fairly large unbroken patch of heliotrope now remains, 12 yards long, where about twenty years ago it skipped ahead past a thicket of blackthorn, ivy and bramble scrub which is currently slowing the arum down at that point. This patch of heliotrope appears to be being slowed down by heavy early summer competition, now the flailing is usually not before July. Where the knotweed has been sprayed the arum has caught it too, but although somewhat yellowed it does not appear to be discouraged by it.



RAMPANT. Three-cornered leek (Allium triquetrum) spreading thickly along the flail-enriched foot of the hedge at the old cottage corner, where primroses, field forget-me-not, heartsease, bird's-foot trefoil and wild strawberries used to grow.



RAMPANT. The old cottage hedge is now a mass of Italian arum, three-cornered leek, montbretia and rosebay willowherb.



DIVERSITY LOSS. Lighter trimming has allowed the flail-matted gorse to grow out from the hedge-side and to bloom. A big improvement on the shaved banks of closer flailing but still taking the place of around 140 floral species pre-flail at this end of the survey mile and preventing any from returning. Pre-flail, every gorse bush on the hedge top was alive with bees. On this day, 35 years on, with golden blossom as far as the eye can see, no bee was seen in this length of hedge where an estimated 6-700 larger bumblebees died at the first flailing.

Some twenty years ago it skipped across the field gateway, where the old cottage once stood, and extends for 26 yards towards the pond site, only having been stopped in that direction by meeting the big blackthorn-and-ivy thicket. For the 12 years of observation pre-1972 (pre-flail) the original clump had not appeared to enlarge at all. To flourish, rosebay willowherb needs 'scorched earth', ie removal of growth and enrichment of soil, as follows fire (or flail) - hence its common name 'fire-weed'. Perhaps if it and its fellows were dubbed 'flail-weeds' it might help people to understand some of the pernicious effects of this machine.

At the western end of the mile the south-facing hedge has received less flailing than the rest, the land having been let out to different tenants. Where there was still a small area of herbaceous growth this has increased, pushing back the ivy. The lighter flailing has allowed the gorse mat formed on the hedge-side to grow out, and at this end of the mile this has become bushy to the point of flowering on the sides of the hedge as well as the top. This has reduced the ivy cover, so if the gorse on the side of the hedge were now cut out, right back to the stones, there might be a chance for herbaceous growth to re-establish itself on the bared patches. As long as it is not flailed off while green, herbaceous growth should come more quickly than the ivy and so hold it in check.

In places where last year's flailing has knocked the bigger gorse bushes back, removing all the furzy part and leaving the bare woody stems sticking out about a foot from the hedge-side, the terrible condition of the stonework is revealed. Years of flails knocking out stones, dehydration due to close

On the old cottage hedge the Italian arum is beating three-cornered leek and appears at present to be level-pegging with montbretia, another stealthy spreader which seems to be almost the only plant that tolerates being flailed off in its mid-season; presumably it is able to draw on reserves of energy stored in the corms. However, it appreciates being allowed to grow more freely and sometimes to flower and, like the leek, is spreading along Cornish hedges with ever-more-noticeable menace, outwards from many a domestic roadside entrance or fly-tip.

The fastest sprinter after all has been the rosebay willowherb, averaging over 4 yards per year. The original small clump by the cottage gatepost now reaches for 140 yards, along the cottage site frontage, around the corner and up the adjoining lane, on the crown of the hedge-bank, and is spreading downwards over the sides to meet the three-cornered leek coming up.



FLAIL DAMAGE. Big stones still falling out (June 2007) from lower part of huge cavity caused by flail knocking out stones during 1970s, then collapse of seriously dehydrated hedge structure through 1980s. These were beautifully-built old hedges with coursed stonework still in perfect order in 1972. This photo shows what has been done to them by the flail.

flailing and then lighter flailing causing heavy matted scrub growth with its woody roots in the sides of the hedge have virtually destroyed the original structure. In the places I could see, the earth is deeply fallen away from between the stones and the whole hedge-side has slipped and slumped, the stones higgledy-piggledy and no greenery growing at all, just the gorse branches coming out of a kind of landslide of loose hedge stones, bare earth and dry gorse-litter. Even the most common and ubiquitous shade-loving mosses have given up and disappeared from these areas. Where wide areas of the stonework fell off during the worst years of council flailing, larger stone from lower down is now sliding out. In view of the beautifully-built hedge this was pre-flail, with its enchanting population of hundreds of diverse species, this is an utter outrage. These hedges were once the pride of Cornwall.

Insect life is still very poor indeed, almost non-existent. To date this year one large red damselfly and three seven-spot ladybirds have been seen in the survey hedge, besides a few very common fly species in small numbers. Walking the length of the mile this year has so far yielded not more than one butterfly (green-veined white) and two bumblebees on any one occasion.

Despite the increased speed of traffic generally these days, drivers are using normal caution again as the hedges have grown out and are giving an accurate impression of lane width. Only one badger has been killed in the survey mile since 1993, the year the hedges began to reach their normal growth again. Rabbits disappeared a few years ago in one of the periodic myxomatosis cycles, but there are now a few reappearing and the buzzard is showing an interest along the lane again. Foxes and badgers still cross the lane, their paths showing clearly up the hedge sides.

A huge heap of earth (also a divan bed and mattress) has been dumped at the pond site. An old long-overgrown track adjoining the survey mile has been cleared and re-opened so possibly the soil came from there. It will be interesting to see what grows on it. [P.S. Nothing interesting did. Rank grass and dock-weeds - probably not from the old track.]

June 21st. Still un-flailed so far this year, and the hedges are looking better than I have seen them since 1972. In places at the eastern end there is something like the old riot of flowers, with bluebells, red campion, stitchwort, herb robert and germander speedwell doing well, interspersed with creeping buttercup and here and there plants of cat's-ear, wild chervil, smooth hawks-beard, nipplewort, sow thistle (all these increasing) and even common rampion fumitory; for the first time there are more than six plants of this flowering, the only species of fumitory that still remains. Along the foot of the hedge silverweed, great plantain and ribwort plantain are now quite abundant, while white clover and the chickweeds are still present. Here too knotgrass, rayless mayweed, wavy bitter cress, water pepper and redshank have returned and increased.



DECEPTIVE. This short length of hedge at eastern end of survey mile, taken in June 2004, looks pretty, but there is no follow-up with the later summer flowers. 27 flowering species have gone from this section of hedge seen in the picture, and 3 more from just around the corner.

Along the more exposed two thirds of the survey mile red campion, greater stitchwort and the occasional foxglove are managing to make a more flowery appearance than has been seen here since the mid-1970s, but the few remaining of the heath species that used to predominate here are doing very badly. For a short distance along the north-facing hedge where there happens to be no ivy, pignut is hanging on. On the opposite side where a section of the hedge was more recently built (post-

1840), low and turfy and without ivy, violets have survived and ground ivy and narrow-leaved vetch have started to make a comeback; but most of the south-facing hedge (once plastered with mosses, lichens, stoncrop, scabious, hawkbit, tormentil, trailing St John's wort, heath bedstraw, milkwort, bird's-foot trefoil, yarrow, golden rod, orchids, heather, violets and the rest) is in a dire condition, overwhelmed with gorse, ivy, blackthorn and bramble scrub and the rampant introduced weeds. In the small spaces between these, mainly bracken and coarse grasses grow, with wall pennywort and sheep's sorrel (the two toughest species from the original flora) singing a duet here and there on the drier parts.



INCREASING SLIGHTLY. Creeping buttercup, attracting a tiny remnant of insect life.



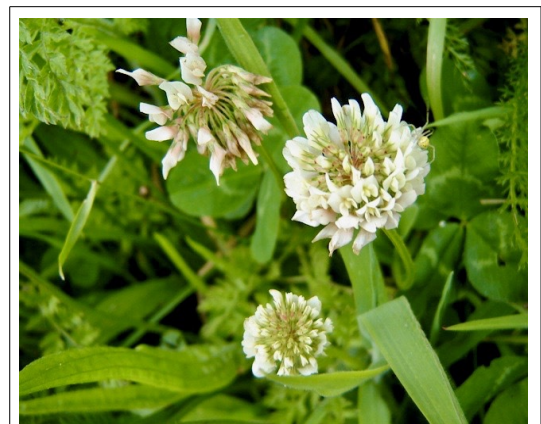
DISAPPEARING. Sheep's-bit scabious, reduced to fewer than a dozen small plants.

Only one small colony of sheep's-bit scabious is now to be seen in the whole mile, on a section of hedge where there happened not to be any ivy to start with. Greater bird's-foot trefoil is diminishing, yarrow also is sparse with no pink-flowered plants remaining, and only one or two plants of golden rod noticed so far. The little struggling comeback of English stoncrop has gone again, tormentil is very scarce and only two plants of heath bedstraw remain, one of them about to be ruled out by ivy, bramble and bracken. Because the flail causes a mat of leaf-litter and tough vegetation all over the face of the stonework, the small plants of the heath hedges like milkwort, trailing St John's wort, ivy-

leaved bellflower, barren strawberry, stoncrop and most of the speedwells have long disappeared, the few remaining mosses are doing very badly and lichens have virtually gone, only remaining on gateposts. Hardly a stone is visible in the whole mile even in winter. Only 25 species of moss were found and identified still struggling on in 1994, and a number of these (the last lingering heath mosses) have now disappeared.

Along the north-facing hedge also, campion, stitchwort and bluebells have tried to make a show, but here too conditions are bad. Long sections are thickly ivied all over the hedge-face and cow parsley, hogweed, nettles, docks and cleavers are growing up in a mass from the base. There are hopeful signs that the lower-growing species, grateful for the restored moisture and the protection of shade from the bigger plants, are fighting back; lesser stitchwort much increased in places, germander speedwell making some reasonable-sized patches (one or two perhaps a foot across). A notable increase among the tarmac-edge species such as rayless mayweed, knotgrass, wavy bitter-cress, silverweed and great plantain, all of which thrive on a poor soil, and a decrease in white clover which thrives on a rich one, suggests that the later and lighter flailing might, hopefully, have begun to allow the fertility to fall.

Marsh bedstraw has appeared in the middle of the pond (now waterless most of the year but still muddy) where the older clumps of knotweed have died down somewhat after spraying; possibly the bedstraw has been there all along, weakly lurking



DECREASING. White clover.

unseen in the forest of knotweed. On the damp verge along the road between the pond and the cottage site there is a good increase in hedge woundwort and large bindweed, the latter originally one of the species at the pond, possibly fly-tipped. At the cottage end of this verge evening primrose, meadow buttercup and the purple-stemmed, deep pink-flowered hogweed that used to grow here have reappeared for the first time since the mid-1970s. There is a definite decrease in the quantity of onion couch and a slight return of diversity in grasses, a similar presence to that of the later 1970s, with a good deal of cock's-foot and one or two less aggressive species - sweet vernal, bristle bent, creeping soft-grass - holding their own, while common bent has reappeared on the upper part of the less damaged sections of hedge-side. A mass of barren brome has appeared where run-off from the bulb-fields, caused by removal of internal farm hedges, washed soil through a stile on to the road in 1994.



REGAINED. One plant of the deep pink variety of hogweed has reappeared at the old cottage site after thirty years' absence.

A wet summer has produced bigger and healthier ferns than have been seen since 1972. Male fern is back in strength and a number of the scaly male fern have made big crowns again, as has lady fern at one of its original stations. Hart's-tongue has nearly gone, only appearing as usual in a small set-back length of hedge where there is no ivy. Black spleenwort and mountain male fern are in desperate straits and even common polypody severely reduced by the spread of ivy.

Despite the encouraging increase in number and health of some common flowering plants due to the less draconian flailing, the weaker or less common plant species do not recover or reappear and insects continue to decline. The lack of life in the hedges is frightening. Apart from buzzard, rook and crow seen on telegraph poles and wires, not a single bird has been seen or heard this year at any inspection of the survey mile until yesterday, June 20th, when a wren was heard singing in the bushes at the eastern end. Just one pipistrelle bat has been seen over the house garden once or twice this year. Jackdaw numbers still falling, and for the first time only one of the house's five spare chimney-pots has been occupied, with just one clutch raised; in normal times three or four clutches were raised each year. Restless lone jackdaws (unusual as they mate for life) are noticed in the area, the whole trend and their anxious behaviour showing the now all-too-familiar indications of excessive sparrow-hawk predation.

To date, one butterfly has been seen in the mile on four separate occasions:- 3 green-veined whites (possibly the same one each time) and 1 small white. 6 moth species have been seen on the wing, one specimen of each, on separate occasions:- purple bar, silver-ground carpet, yellow shell, blood-vein, and 2 micro-moths. 2 drinker moth caterpillars have been seen, the only larvae so far this season. No moth has yet come to the house lights this year.



DISAPPEARING. One 'greenbottle' on one among dozens of otherwise vacant hogweed flowers.

Eight specimens of the flower-haunting beetle *Oedemera nobilis* have been counted at one time, all but one of them males. At the eastern end a few hoverflies, dung-flies, greenbottles and some smaller flies are on the wing, with not more than two at any one moment on umbellifer heads, and most of the heads vacant - perhaps one in fifty with an insect on it. Even allowing

for the increase in the amount of hogweed during the flail years, the contrast with the typical assortment of insects on every head (many heads black with scores of little pollen flies) at the height of a normal season pre-1972 would be hard to believe if I hadn't seen the massacre happen.

At any one walk along the mile only two or three bees are likely to be seen, of only two species so far (*Bombus terrestris* and *B. pascuorum*). Snails are doing slightly better, perhaps up to a dozen mature brown-lipped snails being seen in the foliage by day at any one walk of the mile. Spiders also are still very few. Funnel-web spiders are doing a little better than orb-web; they prefer a firmer base and are able to spin their web in packed ivy or gorse.

July 31st. Counted the flowering species and assessed those scarce and failing, including both sides of the road. The species total for this year is 94.

The following 8 species are a menace:- gorse (when matted on side of hedge by the flail), ivy (ditto), Italian arum, winter heliotrope, Japanese knotweed, three-cornered leek, montbretia, rosebay willowherb. 4 more have spread out of proportion to other species:- hogweed, nettle, cleavers and cow parsley.

Doing reasonably well or increasing:- wild angelica, betony, hedge bindweed, large bindweed, bluebell, creeping buttercup, red campion, wild chervil, common chickweed, dandelion, broad-leaved dock, ground ivy, herb robert, honeysuckle, black knapweed, knotgrass, common mouse-ear, sticky mouse-ear, water pepper, great plantain, ribwort plantain, silverweed, common sorrel, sheep's sorrel, greater stitchwort, lesser stitchwort, hedge woundwort, narrow-leaved vetch.

Reappeared this year:- white betony (1), white bluebell (2), meadow crowfoot (1), pink hogweed (1), scentless mayweed (1), pale persicaria (2), evening primrose (2).

Fewer than 20 specimens:- nipplewort, soft rush, greater bird's-foot trefoil, marsh woundwort, yarrow. The nipplewort, soft rush and marsh woundwort are increasing, the trefoil and yarrow have decreased since 2002.



DISAPPEARING. Dove's-foot cranesbill. Only five plants left.



ONLY ONE PLANT LEFT. Bell heather.

Fewer than 12 specimens:- cat's-ear, cut-leaved cranesbill, common daisy, common ramping fumitory, smooth hawksbeard, water pepper, sheep's-bit scabious, rough sow thistle, smooth sow thistle, germander speedwell, common bird's-foot trefoil, tufted vetch, meadow vetchling.

Fewer than 6 specimens:- common avens (2), heath bedstraw (2), hedge bedstraw (2) white betony (1), white bluebell (2), meadow crowfoot (1), wild carrot (3), dove's-foot cranesbill (5), hairy bitter cress (2), curled dock (2), common figwort (3), wild gladiolus (2), wild golden rod (4), bell heather (1), pink hogweed (1), milkmaids (1), pale persicaria (2), scarlet pimpernel (4), evening primrose (2), redshank (5), dog rose (1), field rose (1), pendulous sedge (1), slender speedwell (1), barren strawberry (1), tormentil

(5), trailing tormentil (2), creeping thistle (4), spear thistle (1), hybrid willowherb (3), square-stemmed willowherb (4).

Absent:- Marsh cudweed, water figwort, fig-leaved goosefoot, black medick, mugwort, black mustard, black nightshade, enchanter's nightshade, shepherd's purse, ivy-leaved speedwell, thyme-leaved speedwell, white violet, broad-leaved willowherb, downy willowherb, pink yarrow. Forget-me-not fly-tipped at pond in 2003 has gone, as have previously-dumped oxalis and grape hyacinth.

Creeping cinquefoil, growing only on the cottage hedge, is threatened by arum and montbretia. Noticeably decreasing are lesser celandine, white clover, foxglove, wall pennywort, pignut, common violet and woodsage. Even black knapweed is down to 33 plants, all at the foot of the hedge and many of them stunted or traffic-damaged.

Perhaps the saddest sight is the tufted vetch, only seven specimens and all miserable little spindly stunted cripples with only a couple of flowers, except for one tolerably good plant on the turf piece of more recently-built hedge with the violets, ground ivy and narrow-leaved vetch. Tufted vetch and wild golden rod, the latter now down to only four small plants and two of them with only one flowering stem, used to make masses of purple and gold all along these hedges in August and September before the arrival of the flail in 1972.

The one very small plant of scentless mayweed is the first seen in the mile since 1975 except for a brief appearance of one plant in 2002 where the ground by the pond had been churned up.



ONLY FOUR PLANTS LEFT. Scarlet Pimpernel.



THE LAST spear thistle and nearly the last bumblebee - an evocative little back-view disappearing from the scene. The goldfinches whose staple food was the thistle-seed have already long gone from the survey mile, the last one seen in 1979.

Summing-up, 2007.

In the twelve years' (1960 - 1972) observation of these hedges before the flail was introduced, there was no apparent change in quantity, quality or position of any species growing in the survey mile. The stability and persistence of their populations, both animal and vegetable, is one of the remarkable attributes of properly-managed Cornish hedges. Since the flailing began thirty-five years ago, only three species have remained unaltered in quantity, quality or position:- common figwort (3 specimens) growing on the damp verge near the pond site; pendulous sedge in one big clump at the top of the old cottage hedge; and water dropwort growing in a permanently damp patch in a kink in the hedge where it is partially missed by the flail.

I dislike water dropwort (having once battled to eradicate it from a pasture where it nearly poisoned a pony) so having noted this clump only from the corner of my eye for 47 years I realised when compiling this summary that I had left it off the original list and never checked the species. Vaguely thought it looked a bit

different perhaps because of uncongenial situation plus flail discouragement. This seems to be the case as it appears to be the common *Oenanthe crocata* though perhaps of less robust growth than where it grows in or beside water.

Of the original 186 flowering species (including sub-species), the 5 colour forms and the 8 unconfirmed species, (193 flowering species in total) only 55 have persisted throughout the 35 years of flailing since 1972. Of these 55 species:-

- 3 species are unchanged.
- 11 species have disastrously increased.
- 41 species are seriously reduced in number, most by over 90%. Of these, 18 are now increasing under the somewhat lighter flailing regime. 13 are still decreasing, and 35 have only a few specimens (from 1-12 plants) left.

Of the rest of the original species:-

- 37 species and 3 colour forms have disappeared, then reappeared after varying lengths of time. Of these, 20 have fewer than 6 plants, most of them only 1 or 2, and are liable to disappear again. Only 6 of the recovered species look capable of surviving in the longer term.
- 23 species have reappeared, then disappeared again due to being flailed before they could set seed or to being overcome by rank weeds.
- Only 3 species have reappeared for a second time, and one of these has since disappeared for the third time.
- 68 species and 2 colour forms disappeared and have never reappeared to date (2008).

Of the 83 flowering species (excluding 11 rampant species) and 3 colour forms now present in the survey mile, around 50 are unlikely to survive there in the long term, certainly not in viable numbers, if flailing continues.

Unless the degradation of habitat, high fertility and spread of ivy and other rampant weeds can be reversed, it appears highly unlikely that more than a dozen or so of the lost floral species can ever safely return or be re-introduced.

The only birds sighted more than once so far this year along the mile have been magpie, rook, crow and buzzard, and a swallow (probably the same one each time) hunting between the hedges now and then at the sheltered eastern end of the mile. One wren heard June 21st, one blackbird seen June 27th (these also at the eastern end) and one greenfinch today July 31st. On this hot sunny high-summer day counted only 7 hedge brown butterflies (6 of them males), one red admiral and one large white. Half a dozen small bumblebees, two carder bees, half a dozen hoverflies of two common *Eristalis* species, one flesh fly, one scorpion fly and one dragonfly, *Cordulegaster boltonii*, not hunting, zooming straight down the road and disappearing into the distance.



ONLY ONE PLANT LEFT. Barren strawberry.



REGAINED. One ringlet butterfly seen in survey mile this year.

Only 8 butterfly species so far this year, and only one specimen each of five of them (red admiral, speckled wood, large white, ringlet and large skipper, the latter seen only once since 1976). Only small white, hedge brown and speckled wood have managed to appear every year since the flail arrived.

For some years I have been noticing very small specimens particularly of hedge brown and speckled wood. This year nearly all the hedge browns seen in the mile ('all' being a dozen or so in total) are of this stunted size, some of the males appearing really tiny. I am wondering if this might be a response to general environmental stress, or due to inbreeding as flail-reduced numbers are so low. The hedge brown does not fly far from its hatching place so mating opportunity is now extremely limited. With the few species of insects now seen in the hedges there seems to be a high proportion of males to females, at least five to one.



21st September 2007. *Two-thirds of the survey mile flailed on both sides of the road, much later than usual but still four months too soon, and too closely-trimmed. Invertebrates and late-flowering plants lost, crowns smashed off larger ferns and the birds' autumn feeding-ground destroyed.*

So far this year only a single moth has come to the house lights. It was a Drinker, and it killed itself against the bulb before it could be saved.

September 21st. Most of the survey mile closely flailed today along both sides of the road.

End note, June 2008.

I hear spring vetch has been officially recorded somewhere in West Cornwall and confirmed as a presence in the county, so perhaps I can be permitted to have seen it pre-1972 in the survey mile. I wonder where they found it? It's gone from hedges where it used to be, along with other scarcities and so-called scarcities that used to flourish in so many hedges unrecorded, before the flail arrived. I have given careful thought to including mention of some of the plants and butterflies. So little seems to be known of the species resident in Cornish hedges pre-flail that I realise some references may invite scepticism. I am a sceptic myself, so sympathise with the reaction; but I have concluded that, with a view to re-establishing vulnerable species, it needs to be known that they can with the right management safely and perpetually thrive in ordinary Cornish hedges. In future this knowledge could solve the increasingly difficult question of sufficient and suitable sites for sustainable wild flower and butterfly conservation - as long as it is a future in which the hedge-flail does not figure.

Times and attitudes have changed since the days when the flail first appeared on the scene. The plight of our once-so-diverse wildlife is officially recognised as a priority; agricultural grants may embrace conservation measures, and perhaps economic strictures will tend more to a live-and-let-live policy in future with less of the expensive, pointless and desecrating "tidying-up". We now have an enthusiastic generation keen to help nature recover its diversity, but often unsure as to how this is best achieved. [Please see CHL "Restoring Biodiversity in Cornish Hedges".]

There is still widespread ignorance of the effects of such destructive machinery as the flail-mower and other rotary trimmers and strimmers. Few people but the elderly now remember or understand the life that ought to be abundant in the everyday hedges, verges, field margins and waste places. The simple remedy of returning to the clean-cutting finger-bar scythe used in late winter, trimming alternate sides of the hedge in different years, not trimming green herbaceous growth and leaving the cut material (mainly dead stems and twigs) on or near the hedge, is largely unrealised. This wildlife-friendly type of trimmer is still available from some suppliers.

Cornwall County Council has changed from being (in this instance) the chief offender to employing said-to-be environmentally-aware officers concerned with reconciling conservation and development. In recent years the council has issued instructional leaflets about hedges and their wildlife, including one entitled *Cornish Roadside Hedge Management* (since altered, perhaps not entirely for the better). This leaflet largely embodied the principles that our petition of 1985 asked for. Ironically, it is no longer the council's employees who are carrying out the work. Although this advice is now available, it does not necessarily reach the farmers and contractors out on the job. The flails are still in destructive action at any time from June onwards, though on the whole the work does seem to be being done later rather than sooner. Some farmers are now correctly leaving it until January and early February, a good time to allot to road work while other farm jobs may have to wait for drier weather. Most farmers, despite the bad publicity they tend to suffer, truly wish to do the best they can for their wildlife. Sadly for all, the flail is still the universally-available tool.

Those ignorant of the flail's real effects may imagine that 'sensitive' use of it is all right, as some common plant and insect species return temporarily and a few others increase when the work is switched to the less damaging time of year and done lightly. In the longer term, this is delusive; even in winter an unacceptable number of individuals are killed at every flailing and the habitat still inexorably degrades. No matter how or when or how seldom the flail is used, species continue to die out.

Until naturalists and environmentalists understand the catastrophic and cumulative effects of the flail they will continue to say they don't know why, despite all well-intentioned efforts, the numbers and diversity of wild flowers, songbirds, bats, butterflies, moths and bumblebees are still falling.

Nature lovers have to stop thinking mainly in terms of schemes to benefit a handful of charismatic species at special sites, and start looking at what the flail and other rotary mowers have done to thousands upon thousands of acres of the British countryside

and billions upon billions of its most essential, ordinary inhabitants. It has struck at the major heart of the core existence of our native species, slaughtering them wholesale in that very sanctuary of the hedges and verges. These species had already mostly gone from the rest of the local area; the hedges where they had all taken refuge were their last resort. The remnants of species and their precarious survivors are still being wiped out, smashed to death every time the flail is used. It is the utterly wrong tool for the job and it has to be scrapped.



A brand-new flail-mower operating in February 2008. Right time of year for trimming, wrong kind of trimmer. As long as it is manufactured and turned out into the roads and fields the flail will decimate wild flowers, massacre the small creatures remaining in the hedges and verges, destroy their habitat and ruin the ancient structure of Cornwall's hedges.

Since the last yellowhammer flew across the road in 1980, I have never seen another while walking the survey mile. Since the last grasshopper in July 1981, I have never seen or heard another in these hedges. Since all the other species this diary recorded absent disappeared, they have not been seen again except in the few instances stated in the text. Most of the remaining species are declining. Fewer than half of them are likely to survive in the longer term if present trends continue. The long-vanished flowering species are likely never to return, as repeated flailing before seeding has exhausted their dormant seed stocks. The survey mile is typically representative of a majority of Cornish roadside hedges.

The photographs illustrating many of the flowering species lost were not taken in the survey hedge, for the obvious reason that they were no longer there. Most were taken in the house's wild garden adjoining, while those that did not grow there were obtained only with extreme difficulty, by searching all over West Penwith in a roughly thirty-mile radius for un-flailed pockets of survival. Along the roadside hedges, in this whole distance I found just one or two plants or patches of only a few of the species sought - common toadflax, field scabious, tufted vetch, scentless mayweed, red clover, self-heal - species that before the flail were so commonly seen along the whole length of hundreds of hedges in West Cornwall, now growing only where for some unusual reason of situation the flail had missed.

Some of the photographs of invertebrate species killed out by the flail in the survey mile were taken in the garden adjoining, where, despite nurturing since pre-flail days, the majority have now disappeared due to over-predation. In the survey mile this year, for the first time since 1992, the hedges remained un-flailed throughout the summer, giving a few common invertebrates the chance to reappear. No adult moth is illustrated because only half a dozen individuals were seen during the whole summer season of 2007, unfortunately at moments when the camera was not in my hand or they were fluttering out of reach. The drinker caterpillar alone was found posing beautifully and goes down to posterity as the only visible surviving moth larva noted in the survey mile this year, illustrating the millions of his kind killed by the flail.

Along this one typical mile of Cornish lane alone my records show that the flail has been the outright death or caused the persisting non-appearance of 90 flowering herbaceous species, 5 shrub species, 20 grass species, 60 moss species, 40 bird species, 23 butterfly species, 250 larger moth species, many scores of other invertebrate species, and untold thousands of individuals. It has condemned the hedge itself to a long-term, silent, living death, wrecked its antique stone construction and destroyed its great beauty.

Along the whole of the estimated 30,000 miles of Cornish hedges the deaths of individual plants and creatures from flail-battering and the loss of their generations represent truly astronomical figures. The degradation of habitat resulting from flailing prevents revival in most species even where a few individuals manage to escape the physical impact of the flails. Although the effect in Cornwall with its solid hedge-banks and their more complex ecology may be worse than with the English hedgerow, the flail-induced wildlife crisis is nation-wide - and still almost universally unrecognised or unacknowledged.

There is no hope of recovery for our countryside wildlife until the flail type of machine is consigned to the black museum of history. To achieve this it will probably have to be banned by law.

The finger-bar scythe has to be reinstated and any trimming (except where needed for road-junction or access visibility) must be carried out in winter, the later the better between November 1st and February 28th. Trimming must take away the woody scrub growth on the sides of the hedge, leaving the herbaceous growth on the sides and the bushes on the top untouched. Only then can the flail-ruined hedges and verges begin to see a real return to some kind of healthy and abundant life.

Postscript, 2019.

1st June.

For ten more years the hedges of the lane have continued to be trimmed with a flail mower once a year, usually in July or August, sometimes later. This has at least allowed growth in early summer, mainly of brambles, coarse grasses and weeds fed by the flail-mulch. This healthier growth has begun to discourage the ivy. The slightly later flailing has also occasionally allowed the earlier wild flowers to set some seed, so the hedges today appear much better, with enough spring flowers to look quite pretty through May, and a reasonable outline of bushes along the top. In other respects, the situation is worse.

My prediction in 2007 that no more than about 35 of the original flowering species, excluding 11 rampants, were likely to survive in the long term seems to have been accurate so far. While some of those still present in 2007, notably bluebells, red campion, greater stitchwort and foxglove, have increased their numbers, the majority, mainly the remaining heath flowers and later summer annuals and perennials, have decreased or disappeared. No other species has reappeared.

The continued absence of all other life is dire. Today, the first day of June, a beautiful sunny day with the hawthorn in blossom and more flowers than I have seen in these hedges for years, in the entire mile looking at both sides of the lane I saw only one bird (robin), two butterflies (male orange tip, speckled wood), two bees (one carder, one small white-tailed bumble), one crane fly and a few dozen assorted small flies. The orange-tip is one lone ranger that hatched in the garden and has been quartering the area for a week or two, looking for a mate. I doubt whether he will find her.

SPECIES LISTS for the survey mile follow, showing incidence and disappearance of flowering herbaceous species, woody species, ferns, grasses, sedges and rushes, mosses, birds, moths and butterflies.

Flowering herbaceous species (and a few bulbiferous) present in the survey mile in 1972, with dates of disappearance (year first recorded absent) and reappearance (marked below as 'dis' and 're'). Those marked only 'dis' have been absent since that date. Species introduced at old cottage site and pond are marked [cott].

Agrimony *Agrimonia eupatoria* disappeared 1980
Agrimony, Hemp *Eupatorium cannabinum* dis 1981
Angelica, Wild *Angelica sylvestris* [cott] persisting to date (2008), now increasing.
Arum, Italian (Lords-and-ladies) *Arum italicum* [cott] greatly increased, rampant.
Arum, Italian *Arum italicum* ssp *neglectum* [cott] greatly increased.
Avens, Common *Geum urbanum* disappeared 1982, re-appeared 2000 (2 plants)
Bartsia, Yellow *Parentucellia viscosa* dis 1975
Bedstraw, Heath *Galium saxatile* reduced to 1 plant 2007
Bedstraw, Hedge *G. mollugo* reduced to 2 plants 2007
Bedstraw, Lady's *G. verum* [cott] dis 1973
Bedstraw, Marsh *G. palustre* 1 plant 2007 (presume persisted hidden by knotweed)
Betony *Stachys officinalis* much reduced.
Betony (white form) *S. officinalis* dis 1976, re 2007 (1 plant)
Bindweed, Hedge *Calystegia sepium* dis 1978, re 1993
Bindweed, Large *C. sylvatica* [cott] dis 1988, re 1992

Bird's-foot *Ornithopus perpusillus* dis 1977
 Bitter-cress, Hairy *Cardamine hirsuta* severely reduced, decreasing, only 2 plants 2007
 Bitter-cress, Wavy *C. flexuosa* dis 1983, re 1994
 Bittersweet (woody nightshade) *Solanum dulcamara* dis 1975
 Bluebell *Hyacinthoides non-scripta* much reduced, increasing 2007
 Bluebell (white form) *H. non-scripta* dis 1984, re 2004
 Bryony, Black *Tamus communis* dis 1976
 Bugle *Ajuga reptans* [cott] dis 1980
 Burdock, Lesser *Arctium minus* dis 1981
 Buttercup, Creeping *Ranunculus repens* severely reduced, increasing 2007
 Champion, Red *Silene dioica* much reduced, increasing 2007
 Champion, Hybrid *S. dioica x latifolia* dis 1978
 Champion, White *S. dioica* var *alba* dis 1975
 Champion, White *S. latifolia* dis 1975
 Carrot, Wild *Daucus carota* ssp *carota* dis 2002, re 2007 (3 plants)
 Catchfly, Night-flowering *Silene noctiflora* dis 1975, re 1993, dis 1995
 Cat's-ear *Hypochaeris radicata* severely reduced, decreasing, less than 12 plants 2007
 Celandine, Lesser *Ranunculus ficaria* much reduced
 Chervil, Wild *Chaerophyllum temulentum* dis 1983, re 1993, increasing.
 Chickweed *Stellaria media* dis 1986, re 2002
 Cinquefoil, Creeping *Potentilla reptans* [cott] reduced.
 Cleavers *Galium aparine* greatly increased.
 Clover, Red *Trifolium pratense* dis 1980
 Clover, White *T. repens* reduced, decreasing.
 Cornsalad, keeled-fruited *Valerianella carinata* dis 1979
 Cranesbill, Cut-leaved *Geranium dissectum* severely reduced, 10 plants 2007
 Cranesbill, Dove's-foot *G. molle* severely reduced, decreasing, 5 plants 2007
 Cranesbill, Hedgerow *G. pyrenaicum* dis 1979
 Cranesbill, Small-flowered *G. pusillum* dis 1975
 Creeping Jenny *Lysimachia nummularia* [cott] dis 1980
 Crowfoot, Meadow *Ranunculus acris* dis 1977, re 2007 (1 plant)
 Cudweed, Marsh *Gnaphalium uliginosum* absent from 1972, re 2002, dis 2007
 Daffodil 'Princeps' *Narcissus cv* [cott] dis 1989, re 1991, dis 1997
 Daisy, Ox-eye *Leucanthemum vulgare* dis 1978
 Daisy, Common *Bellis perennis* severely reduced, less than 12 plants 2007
 Dandelion *Taraxacum officinale* agg severely reduced.
 Deadnettle, Red *Lamium purpureum* dis 1978
 Deadnettle, Spotted *L. maculatum* [cott] dis 1979
 Deadnettle, White *L. album* [cott] dis 1975
 Dock, Bloody-veined *Rumex sanguineus* var *sanguineus* dis 1978
 Dock, Broad-leaved *R. obtusifolius* much reduced, increased since 1990
 Dock, Curled *R. crispus* dis 1982, re 1993 (only 2 plants 2007)
 Dock, Wood *R. sanguineus* dis 1981
 Dropwort, Water *Oenanthe crocata* persisted unchanged.
 Eyebright *Euphrasia sp* [cott] dis 1979
 Figwort, Common *Scrophularia nodosa* persisted unchanged (3 plants 2007)
 Figwort, Water *S. auriculata* dis 1982, re 1993, dis 2000
 Fleabane, Common *Pulicaria dysenterica* [cott] dis 1981
 Forget-me-not, Field *Myosotis arvensis* dis 1998
 Foxglove *Digitalis purpurea* severely reduced, decreasing.
 Fumitory, Common *Fumaria officinalis* dis 1974
 Fumitory, Common Ramping *F. muralis* ssp *boraei* dis 1982, re 1991, dis 1999, re 2004
 Fumitory, Purple *F. purpurea* dis 1976
 Fumitory, Tall Ramping *F. bastardii* dis 1981, re 1993, dis 1996
 Fumitory, Western *F. occidentalis* dis 1976
 Gladiolus, Wild *Gladiolus communis* ssp *byzantinus* [cott] dis 1975, re 1993 (1 original clump, reduced)
 Golden Rod, Wild *Solidago virgaurea* dis 1983, re 1993 (only 4 plants 2007)

Goosefoot, Fig-leaved *Chenopodium ficifolium* absent from 1972, re 2002, dis 2003
 Goutweed *Aegopodium podagraria* dis 1978
 Ground Ivy *Glechoma hederacea* dis 1988, re 1994
 Groundsel *Senecio vulgaris* dis 2002
 Hawkbit, Autumnal *Leontodon autumnalis* dis 1986
 Hawkbit, Hairy *L. taraxacoides* dis 1983
 Hawksbeard, Beaked *Crepis vesicaria* dis 1983, re 1993, dis 1997
 Hawksbeard, Smooth *C. capillaris* severely reduced, now increasing slightly.
 Hawkweed, Umbellate *Hieracium umbellatum* severely reduced.
 Heath, Cross-leaved *Erica tetralix* dis 1979
 Heather (Ling) *Calluna vulgaris* dis 1981
 Heather, Bell *Erica cinerea* reduced (only 1 surviving plant 2007)
 Heliotrope, Winter *Petasites fragrans* [cott] greatly increased, now (2008) slowed by other growth.
 Hemp-nettle, Common *Galeopsis tetrahit* dis 1977
 Herb Robert *Geranium robertianum* severely reduced, now increasing slightly.
 Hogweed *Heraclium sphondylium* greatly increased.
 Hogweed (pink form) *H. sphondylium* [cott] dis 1975, re 2007 (1 plant) dis 2008
 Knapweed, Greater *Centaurea scabiosa* [cott] dis 1977
 Knapweed, Black *C. nigra* reduced.
 Knotgrass *Polygonum aviculare* dis 1985, re 1993
 Knotweed, Japanese *Fallopia japonica* [cott] greatly increased.
 Leek, Three-cornered *Allium triquetrum* [cott] greatly increased, rampant.
 Lettuce, Wall *Mycelis muralis* (only 1 plant) [cott] dis 1974
 Madder, Wild *Rubia peregrina* dis 1974
 Mallow, Common *Malva sylvestris* dis 1976
 Mayweed, Rayless *Matricaria discoidea* dis 1985, re 1993
 Mayweed, Scentless *Triplurospermum inodorum* dis 1976, re 2002, dis 2003, re 2007 (1 plant)
 Medick, Black *Medicago lupulina* dis 1987, re 2002, dis 2004
 Medick, Spotted *M. arabica* dis 1985
 Milkmaids *Cardamine pratensis* reduced to 1 plant 2007, this plant reduced to one stem 2008
 Milkwort, Heath *Polygala serpyllifolia* dis 1978
 Montbretia *Crocsmia x crocosmiflora* [cott] greatly increased, rampant.
 Mouse-ear, Common *Cerastium fontanum* ssp *glabrescens* severely reduced, now increasing slightly.
 Mouse-ear, Sticky *C. glomeratum* severely reduced, now increasing slightly.
 Mugwort *Artemisia vulgaris* dis 1981, re 2001, dis 2004
 Mullein, Great *Verbascum thapsus* dis 1977
 Mustard, Black *Brassica nigra* dis 1976, re 1993, dis 2007
 Mustard, Garlic (Jack-by-the-hedge) *Alliaria petiolata* dis 1975
 Mustard, Hedge *Sisymbrium officinale* dis 1977
 Nettle *Urtica dioica* greatly increased.
 Nightshade, Black *Solanum nigrum* dis 1977, re 2002, dis 2004
 Nightshade, Enchanter's *Circaea lutetiana* dis 1982, re 2002, dis 2005
 Nipplewort *Lapsana communis* severely reduced, now increasing slightly.
 Orchid, Early Purple *Orchis mascula* dis 1974
 Orchid, Heath Spotted *Dactylorhiza maculata* dis 1978
 Pansy, Field *Viola arvensis* dis 1975
 Pansy, Wild (Heartsease) *V. tricolor* dis 1974
 Parsley, Cow *Anthriscus sylvestris* much increased.
 Parsley, Fool's *Aethusa cynapium* dis 1979
 Pennywort, Wall (Navelwort) *Umbilicus rupestris* reduced.
 Pepper, Water *Persicaria hydropiper* dis 1981, re 2002
 Persicaria, Pale *P. lapathifolia* dis 1975, re 2007 (2 plants)
 Persicaria, Pink *P. maculosa* (see Redshank)
 Pignut *Conopodium majus* severely reduced, decreasing.
 Pimpernel, Scarlet *Anagallis arvensis* dis 1977, re 2002 (4 plants)
 Plantain, Great *Plantago major* dis 1985, re 1993, increasing.
 Plantain, Ribwort *P. lanceolata* reduced, now increasing.

Primrose *Primula vulgaris* dis 1987
 Primrose, Evening *Oenothera sp.* (2 plants) [cott] dis 1976, re 2007
 Ragwort *Senecio jacobaea* dis 1983, re 1993, dis 1998
 Redshank *Persicaria maculosa* dis 1978, re 2002 (5 plants)
 St John's Wort, Slender *Hypericum pulchrum* dis 1978, re 1993, dis 1996
 St John's Wort, Trailing *H. humifusum* dis 1980, re 1994, dis 1997
 Scabious, Devil's-bit *Succisa pratensis* dis 1980, re 1993, dis 1998
 Scabious, Field *Knautia arvensis* dis 1979
 Scabious, Sheep's-bit *Jasione montana* severely reduced, decreasing, only 7 plants 2007
 Sedum (Caucasian Stonecrop) *Sedum spurium* [cott] dis 1983
 Self-heal *Prunella vulgaris* dis 1981
 Shepherd's Purse *Capsella bursa-pastoris* absent from 1972, re 2002, dis 2004
 Silverweed *Potentilla anserina* dis 1985, re 1993, increasing.
 Sorrel, Common *Rumex acetosa* reduced.
 Sorrel, Sheep's *R. acetosella* reduced.
 Sorrel, Wood *Oxalis acetosella* dis 1978
 Sow-thistle, Rough (Prickly) *Sonchus asper* dis 1982, re 1993
 Sow-thistle Smooth *S. oleraceus* dis 1982, re 1983
 Speedwell, Common Heath *Veronica officinalis* dis 1986
 Speewell, Germander *V. chamaedrys* severely reduced, only 11 plants 2007.
 Speedwell, Ivy-leaved *V. hederifolia* agg dis 1982, re 2002, dis 2007
 Speedwell, Common Field *V. persica* dis 1980, re 1994, dis 1996
 Speedwell, Slender *V. filiformis* dis 1983, re 2002, 1 plant 2007
 Speedwell, Thyme-leaved *V. serpyllifolia* dis 1981, re 2002, dis 2005
 Speedwell, Wood *V. montana* dis 1976, re 2011, dis 2013
 Stitchwort, Greater *Stellaria holostea* dis 1985, re 1993, increasing.
 Stitchwort, Lesser *S. graminea* dis 1985, re 1993, increasing slightly.
 Stonecrop, English *Sedum anglicum* dis 1983, re 1993, dis 1996
 Strawberry, Barren *Potentilla sterilis* dis 1979, re 1994 (1 plant)
 Strawberry, Wild *Fragaria vesca* [cott] dis 1980
 Thistle, Creeping *Cirsium arvense* greatly reduced, decreasing, only 4 plants 2007
 Thistle, Spear *C. vulgare* dis 2001, re 2007, 1 plant.
 Thyme, Wild *Thymus polytrichus* [cott] dis 1976
 Toadflax, Common *Linaria vulgaris* dis 1977
 Toadflax, Ivy-leaved *Cymbalaria muralis* dis 1979
 Tormentil *Potentilla erecta* dis 1985, re 1993 (only 5 plants 2007)
 Tormentil, Trailing *P. anglica* dis 1982, re 1994 (2 plants 2007)
 Trefoil, Common Bird's-foot *Lotus corniculatus* dis 1981, re 1993, now decreasing
 Trefoil, Greater Bird's-foot *L. pedunculatus* severely reduced, decreasing.
 Trefoil, Lesser Yellow *Trifolium dubium* dis 1982, re 1993, dis 1998
 Vervain *Verbena officinalis* dis 1979
 Vetch, Bush *Vicia sepium* dis 1976
 Vetch, Common *V. sativa ssp sativa* dis 1978
 Vetch, Kidney *Anthyllis vulneraria* dis 1975
 Vetch, Narrow-leaved *Vicia sativa ssp nigra* severely reduced, now increasing slightly.
 Vetch, Spring *V. lathyroides* dis 1973
 Vetch, Tufted *V. cracca* severely reduced, decreasing, only 7 plants 2007
 Vetch, Wood *V. sylvatica* (1 specimen) [cott] dis 1973
 Vetchling, Meadow *Lathyrus pratensis* dis 1976, re 1993
 Violet, Common *Viola riviniana* severely reduced, decreasing.
 Violet, Sweet *V. odorata* [cott] dis 1980
 Violet, White Sweet *Viola odorata ssp dumetorum* [cott] dis 2007
 Weasel's Snout (Wild Snapdragon) *Misopates orontium* dis 1975
 Willowherb, Downy *Epilobium parviflorum* absent from 1972, re 2002, dis 2006
 Willowherb, Great *E. hirsutum* dis 1976
 Willowherb, Hybrid *E. ciliatum x parviflorum* dis 1980, re 2002 (3 plants 2007)
 Willowherb, Broad-leaved *E. montanum* dis 1978, re 1993, dis 1998, re 2003, dis 2005

Willowherb, Square-stemmed *E. tetragonum* dis 1981, re 2002 (4 plants)
 Willowherb, Rosebay *Chamaenerion angustifolium* [cott] greatly increased, rampant.
 Woodsage *Teucrium scorodonia* much reduced, decreasing.
 Woundwort, Hedge *Stachys sylvatica* dis 1978, re 1993, now increasing.
 Woundwort, Marsh *S. palustris* dis 1979, re 1993, now increasing.
 Yarrow *Achillea millefolium* much reduced, decreasing.
 Yarrow (pink form) *A. millefolium* dis 2006

Believed present prior to 1972 and subsequently lost before recorded or identification confirmed:-

Bellflower, Ivy-leaved *Wahlenbergia hederacea*
 Cranesbill, Long-stalked *Geranium columbinum*
 Mayweed, Scented *Matricaria recutita*
 Speedwell, Wall *Veronica arvensis*
 Violet *Viola lactea x riviniana*
 Violet, Pale Dog *V. lactea*
 Willowherb, American *Epilobium ciliatum*
 Willowherb, Spear-leaved *E. lanceolatum*

Woody, shrub and climbing species

Blackthorn *Prunus spinosa*
 Bramble *Rubus fruticosus* agg much increased
 Broom *Cytisus scoparius* [cott] dead 1975
 Butterfly Bush *Buddleia davidii* [cott]
 Elder *Sambucus nigra* dead 1979
 Gorse *Ulex europaeus*
 Gorse, Western *U. gallii*
 Hawthorn *Crataegus monogyna*
 Holly *Ilex aquifolium*
 Honeysuckle *Lonicera periclymenum*
 Ivy *Hedera helix hibernica* vastly increased, rampant.
 Privet, Wild *Ligustrum vulgare* dead 1978
 Rose, Burnet *Rosa pimpinellifolia* [cott] dead 1979
 Rose, Dog *R. canina* severely reduced, only 1 plant 2007
 Rose, Field *R. arvensis* severely reduced, only 1 plant 2007
 Rose, Small-flowered Sweetbriar *R. micrantha* dead 2007

Ferns

Bracken *Pteridium aquifolium* vastly increased, rampant
 Fern, Broad Buckler *Dryopteris dilatata* reduced
 Fern, Hart's-tongue *Phyllitis scolopendrium* seriously reduced
 Fern, Lady *Athyrium filix-femina* dis 1985, re 1993
 Fern, Male *Dryopteris filix-mas* reduced
 Fern, Mountain Male *D. oreades* almost disappeared under ivy 2007
 Fern, Scaly Male *D. pseudo-mas* dis 1984, re 1993
 Fern, Common Polypody *Polypodium vulgare* disappearing under ivy 2007
 Spleenwort, Black *Asplenium adiantum-nigrum* almost disappeared under ivy 2007

Grasses, sedges and rushes

List of those known to have been present 1972, with those recorded present 2007 dated.

Barley, Wall *Hordeum murinum*
 Bent, Black *Agrostis gigantea*
 Bent, Bristle *A. setacea*
 Bent, Brown *A. canina*

Bent, Common *A. capillaris* 2007
 Bent, Creeping *A. stolonifera*
 Brome, Barren *Anisantha sterilis* 2007
 Brome, Slender Soft *Bromus lepidus*
 Brome, Soft *B. hordeaceus* agg
 Cock's-foot *Dactylis glomerata* 2007
 Couch, Common *Elytrigia repens* 2007
 Dog's-tail, Crested *Cynosurus cristatus* 2007
 Fescue, Creeping *Festuca rubra*
 Fescue, Rat's-tail *Vulpia myuros*
 Fescue, Sheep's *Festuca ovina*
 Fescue, Squirrel-tail *Vulpia bromoides*
 Foxtail, Marsh *Alopecurus geniculatus*
 Foxtail, Meadow *A. pratensis*
 Grass, Sweet Vernal *Anthoxanthum odoratum* 2007
 Hair-grass, Early *Aira praecox*
 Hair-grass, Silvery *A. caryophyllea*
 Hair-grass, Tufted *Deschampsia caespitosa*
 Hair-grass, Wavy *D. flexuosa*
 Mat-grass *Nardus stricta*
 Meadow-grass, Annual *Poa annua* 2007
 Meadow-grass, Flattened *P. compressa*
 Meadow-grass, Rough *P. trivialis* 2007
 Meadow-grass, Smooth *P. pratensis* 2007
 Moor-grass, Purple *Molinia caerulea*
 Oat, Wild *Avena fatua* 2007 (one plant)
 Oat-grass, False (Onion Couch) *Arrhenatherum elatius* var *bulbosum* 2007 vastly increased, rampant
 Rye-grass *Lolium perenne* 2007
 Rye-grass, Italian *L. multiflorum*
 Soft-grass, Creeping *Holcus mollis* 2007
 Yorkshire Fog *H. lanatus* 2007
 Rush, Soft *Juncus effusus* dis 1986, re 2002, increasing 2007
 Rush, Toad *J. bufonius* 2007
 Sedge, Pendulous *Carex pendula* 2007 (one plant, persisted since 1972)

Mosses

Minimal list of the common species known to have been growing in the survey hedge in 1972. Those noted still surviving in 1994 (nearly all in small quantities) dated. Figures for 2007 not available; several of the 1994 species are unlikely to have survived.

Beard-moss, Bird's-claw *Barbula unguiculata*
 Beard-moss, Bird's-claw, Lesser *B. convoluta* 1994
 Beard-moss, False *Didymodon fallax*
 Beard-moss, Pointed *D. acutus*
 Beard-moss, Rusty *D. ferrugineus*
 Bladder-moss, Common *Physcomitrium pyriforme*
 Bristle-moss, Anomalous *Orthotrichum anomalum*
 Bristle-moss, Hooded *O. cupulatum*
 Bristle-moss, Lyell's *O. lyelli*
 Bristle-moss, White-tipped *O. diaphanum*
 Bristle-moss, Wood *O. affine*
 Crisp-moss, Variable *Trichostomum brachydontium*
 Cryphaea, Lateral *Cryphaea heteromalla* 1994
 Ditrichum, Awl-leaved *Ditrichum subulatum* 1994
 Ditrichum, Curve-leaved *D. heteromallum*
 Feather-moss, Clustered *Rhyncostegium confertum*

Feather-moss, Common *Kindbergia praelonga* 1994
 Feather-moss, Creeping *Amblystegium serpens* var *serpens* 1994
 Feather-moss, Matted *Brachythecium populeum*
 Feather-moss, Neat *Pseudoscleropodium purum* 1994
 Feather-moss, Red-stemmed *Pleurozium schreberi*
 Feather-moss, River *Brachythecium rivulare* 1994
 Feather-moss, Rough-stalked *B. rutabulum* 1994
 Feather-moss, Silky Wall *Homalothecium sericeum* 1994
 Feather-moss, Twist-tip *Oxyrrhynchium schleicheri*
 Feather-moss, Velvet *Brachythecium velutinum*
 Forklet-moss, Red-neck *Dicranella cerviculata*
 Forklet-moss, Rufous *D. rufescens*
 Forklet-moss, Silky *D. heteromalla*
 Fork-moss, Broom *Dicranum scoparium* 1994
 Grimmiia, Grey-cushioned *Grimmia pulvinata*
 Grimmiia, Hair-pointed *G. trichophylla* 1994
 Grimmiia, Lisa's *G. lisae*
 Grimmiia, Stirton's *G. trichophylla* var *stirtonii*
 Grimmiia, Sun *G. montana*
 Haircap, Aloe *Pogonatum aloides*
 Haircap, Bank *Polytrichastrum formosum*
 Haircap, Bristly *Polytrichum piliferum*
 Haircap, Juniper *P. juniperinum*
 Haircap, Urn *Pogonatum urnigerum*
 Hoar-moss, Fringed *Hedwigia ciliata* var *ciliata*
 Mouse-tail Moss, Slender *Isoetecium myosuroides* var *myosuroides*
 Pincushion, Frizzled *Ulota phyllantha*
 Pincushion, Hutchins' *U. hutchinsae* 1994
 Pincushion, Long-shanked *Ptychomitrium polyphyllum* 1994
 Pincushion, Mountain *Dicranoweisia crispula*
 Plait-moss, Cypress-leaved *Hypnum cupressiforme* 1994
 Plait-moss Great *H. cupressiforme* var *lacunosum*
 Plait-moss, Heath *H. jutlandicum* 1994
 Plait-moss, Roof *H. cupressiforme* var *tectorum*
 Plait-moss, Supine *H. resupinatum* 1994
 Pocket-moss, Lesser *Fissidens bryoides* 1994
 Pocket-moss, Common *F. taxifolius* var *taxifolius*
 Pottia, Common *Tortula truncata*
 Redshank *Ceratodon purpureus*
 Screw-moss, Awl-leaved *Tortula subulata* var *subulata*
 Screw-moss, Dog *T. canescens*
 Screw-moss, Small Hairy *Syntrichia laevipila*
 Screw-moss, Wall *Tortula muralis* var *muralis* 1994
 Shaggy-moss, Big *Rhytidiadelphus triquetrus*
 Silk-moss, Elegant *Pseudotaxiphyllum elegans* 1994
 Silk-moss, Juicy *Plagiothecium succulentum*
 Silk-moss, Toothed *Plagiothecium denticulatum* var *denticulatum*
 Silk-moss, Woodsy *P. nemorale* 1994
 Silver-moss *Bryum argenteum*
 Smoothcap, Common *Atrichum undulatum* var *undulatum*
 Spear-moss, Pointed *Calliergonella cuspidata* 1994
 Spear-moss, Straw *Straminergon stramineum*
 Star Moss, Heath *Campylopus introflexus*
 Stubble-moss, Green-tufted *Weissia controversa* var *controversa* 1994
 Stubble-moss, Persson's *W. perssonii*
 Swan-neck Moss, Awl-leaved *Campylopus subulatus*
 Swan-neck Moss, Brittle *C. fragilis*

Swan-neck Moss, Dwarf *C. pyriformis* var *pyriformis* 1994
 Swan-neck Moss, Rusty *C. flexuosus*
 Tamarisk-moss, Common *Thuidium tamariscinum*
 Thread-moss, Capillary *Bryum capillare* var *capillare* 1994
 Thread-moss, Pale *B. pallens*
 Thyme-moss, Swan's-neck *Mnium hornum* 1994
 Wood-moss, Glittering *Hylocomium splendens*
 Yoke-moss, Green *Zygodon viridissimus*

Birds.

The year during which the species (until then regularly present) disappeared from the survey-mile hedges is given, followed by dates of reappearance and last sighting, with bracketed figures giving number of birds and sightings where relevant, if fewer than 6 during the year : eg (1 : 1) indicates a solitary bird sighted once during that year; (3 : 1) = 3 birds of that species sighted together once; (1 : 2) = two separate sightings of a single bird of that species.

Birds marked (A) indicates that at least five individuals, and often many more than five, of that species (residents year-round or migrants in their season) were likely to be seen on any walk along the mile pre-first-flailing July 1972.

(B) = at least one individual of that species (residents year-round or migrants in their season) likely to be seen on any walk along the mile pre-July 1972

(C) = Birds seen on a few occasions in every year pre-July 1972.

(Garden A) = Birds surviving in the adjacent garden in greatly reduced numbers, one nesting pair in most years to date.

(Garden B) = Birds having nested in the garden once or twice since 2008.

(Garden C) = Birds seen in the garden perhaps once in a few odd years since 2008.

Blackbird *Turdus merula* (A) disappeared during 1979, reappeared 1994, last seen 2007 (1 : 1) (Garden A)

Blackcap *Sylvia atricapilla* (C) dis 1973, re (last seen) 1994 (1 : 1) (Garden B)

Bullfinch *Pyrrhula pyrrhula* (B) dis 1978 (Garden C)

Bunting, Corn *Emberiza calandra* (A) dis 1979

Buzzard *Buteo buteo* (B) dis 1984, re 1991, seen sporadically until 2003, then more frequently.

Crow, Carrion *Corvus corone* (B) dis 1983, re 1996

Chaffinch *Fringilla coelebs* (A) dis 1980 (Garden A)

Chiff-chaff *Phylloscopus collybita* (A) dis 1976 (Garden A)

Cuckoo *Cuculus canorus* (C) dis 1974

Fieldfare *Turdus pilaris* (C) dis 1975

Flycatcher, Spotted *Muscicapa striata* (C) dis 1974 (Garden B)

Goldcrest *Regulus regulus* (C) dis 1978

Goldfinch *Carduelis carduelis* (A) dis 1979 (Garden B)

Greenfinch *Chloris chloris* (A) dis 1979, re 1994, last seen 2007 (1 : 1)

Jackdaw *Corvus monedula* (B) dis 1983, re 1995, last seen 2005 (1 : 3) (Garden A)

Kestrel *Falco tinnunculus* (C) dis 1977

Linnet *Carduelis cannabina* (B) dis 1975, re 1994 (4 : 2), last seen 1995 (1 : 1)

Magpie *Pica pica* (B) dis 1984, re 1996

Martin, House *Delichon urbica* (C) dis 1974

Nightjar *Caprimulgus europaeus* (C) dis 1972

Owl, Barn *Tyto alba* (C) dis 1975, re 1998, last seen 2003 (1 : 1)

Owl, Tawny *Strix aluco* (C) dis 1977, re 1995, last seen 2006 (1 : 1)

Pipit, Meadow *Anthus pratensis* (A) dis 1976, re (last seen) 1996 (2 : 1)

Redwing *Turdus musicus* (C) dis 1974

Robin *Erithacus rubicula* (A) dis 1979, re (last seen) 1996 (Garden A)

Rook *Corvus frugilegus* (B) dis 1982, re 1997

Sparrow, Hedge *Prunella modularis* (A) dis 1982

Sparrow, House *Passer domesticus* (A) dis 1979 (Garden A)

Skylark *Alauda arvensis* (B) dis 1975 (last seen in hedge). Heard until 2001, when the last one was taken by sparrow-hawk.

Starling *Sturnus vulgaris* (A) dis 1980, re 1994 (4 : 1), last seen 2001 (1 : 1)
 Stonechat *Saxicola torquata* (C) dis 1973
 Swallow *Hirundo rustica* (B) dis 1981, re 1994, last seen 2007 (1 : 4)
 Swift *Apus apus* (B) dis 1974
 Tit, Blue *Parus caeruleus* (A) dis 1979, re 1994, last seen 1997 (1 : 1) (Garden A)
 Tit, Coal *P. ater* (B) dis 1978
 Tit, Great *P. major* (A) dis 1979, re 1994 (2 : 1), last seen 2004 (1 : 1) (Garden A)
 Tit, Long-tailed *Aegithalos caudatus* (C) dis 1976 (Garden C)
 Tit, Marsh *Parus palustris* (C) dis 1975
 Thrush, Mistle *Turdus viscivorus* (B) dis 1979
 Thrush, Song *T. philomelos* (A) dis 1979 (Garden C)
 Wagtail, Grey *Motacilla cinerea* (C) dis 1974
 Wagtail, Pied *M. alba* (B) dis 1976
 Warbler, Sedge *Acrocephalus schoenbaenus* (C) dis 1973
 Warbler, Willow *Phylloscopus trochilus* (A) dis 1976 (Garden C)
 Whitethroat *Sylvia communis* (C) dis 1973
 Woodpecker, Green *Picus viridis* (C) dis 1977, re (last seen) 2003 (1 : 1)
 Wren *Troglodytes troglodytes* (A) dis 1983 (1 : 2), re 1994 (1 : 1), last seen 2007 (1 : 1) (Garden A)
 Yellowhammer *Emberiza citrinella* (A) dis 1980

Moths.

Dates show the last year the species was recorded in close vicinity to the hedges along the survey mile. Sightings were recorded at house lights or by day, not by systematic trapping - that is, they represent what the ordinary person typically used to see, not necessarily every species present in the locality. After 1980, last sightings were usually of just one individual for the whole of that year. As a guide:-

Dates from 1972 - 1974 show direct wipe-out of species in roadside hedges, impact-killed by flailing. This includes some species whose larval food-plants may not have been in the hedge but whose adult moths fed and were sleeping there at the time of flailing. Nearly every species here listed lost the vast majority of its local population at the first flailing.

Dates from the later 1970s onward show losses by over-predation following drastic reduction of species and numbers by the first roadside flailing and by first flailing of field hedges in the vicinity.

1994 shows wipe-out of species impact-killed at 19th July flailing of field hedges that year.

Those species followed by (garden) are known to have survived by breeding on plants in the adjacent garden long after disappearing from the roadside hedges of the survey mile during the early 1970s.

Only seven moth species from this list were seen in 2007, one specimen of each of the seven except Drinker, of which 3 specimens seen. After this date even fewer were seen, typically one individual of one or two species in the whole of one year. By summer 2018 no moths at all had come to the house lights for over five years.

Angle-shades *Phlogophora meticulosa* 2008
 Angle-shades, Small *Euplexia lucipara* 1981
 Anomalous *Stilbia anomala* 1976
 Arches, Black *Lymantria monacha* 1978
 Arches, Least Black *Nola confusalis* 1975
 Arches, Buff *Habrosyne pyritoides* 1986
 Arches, Dark *Apamea monoglypha* 1987
 Arches, Green *Anaplectoides prasina* 1972
 Arches, Grey *Polia nebulosa* 1972
 Arches, Light *Apamea lithoxyloa* 1972
 Barred Straw *Eulithis pyraliata* 1994
 Blood-vein *Timandra griseata* 1981 (One specimen seen 2007)
 Blood-vein, Small *Scopula imitaria* 1972
 Bordered Beauty *Epione repandaria* 1989
 Bright-line Brown-eye *Lacanobia oleracea* 1975
 Brimstone Moth *Opisthograptis luteolata* 1992
 Brindle, Cloud-bordered *Apamia crenata* 1972

Brindle, Yellow-barred *Acasis viretata* 1980
 Brindled Ochre *Dasypolia templi* 1972
 Broad-bar, Shaded *Scotopteryx chenopodiata* 1972
 Broad-barred White *Hecatera bicolorata* 1986
 Brocade, Dusky *Apamia remissa* 1972
 Brocade, Pale-shouldered *Lacanobia thalassina* 1972
 Broom Moth *Ceramica pisi* 1976
 Brown-line Bright-eye *Mythimna conigera* 1972
 Brown Silver-line *Petrophora chlorosata* 1972
 Brown-spot Pinion *Agrochola litura* 1972
 Brussels Lace *Cleorodes lichenaria* 1988
 Buff-tip *Phalera bucephala* 1989
 Burnet, Six-spot *Zygaena filipendulae* 1972 (One specimen seen 1993)
 Burnished Brass *Diachrysia chrysitis* 1994
 Cabbage Moth *Mamestra brassicae* 1974
 Champion *Hadena rivularis* 1994
 Carpet, Beautiful *Mesoleuca albicillata* 1972
 Carpet, Common *Epirrhoe alternata* 2005
 Carpet, Common Marbled *Chloroclysta truncata* 1977
 Carpet, Dark-barred Twin-spot *Xanthorhoe ferrugata* 1995
 Carpet, Flame *X. designata* 1972
 Carpet, Galium *Epirrhoe galiata* 1974
 Carpet, Garden *Xanthorhoe fluctuata* 2004 (garden)
 Carpet, Green *Colostygia pectinataria* 1974
 Carpet, Oblique *Orthonama vittata* 1974
 Carpet, Red Twin-spot *Xanthorhoe spadicearia* 1972
 Carpet, Sandy *Perizoma flavofasciata* 1972
 Carpet, Silver-ground *Xanthorhoe montanata* 2008 (garden)
 Carpet, Twin-spot *Perizoma didymata* 1972
 Carpet, Water *Lampropteryx suffumata* 1972
 Chestnut *Conistra vaccinii* 1974
 Chestnut, Beaded *Agrochola lychnidis* 1977
 Chestnut, Dark *Conistra ligula* 1972
 Chestnut, Flounced *Agrochola helvola* 1972
 Chestnut, Red *Cerastis rubricosa* 1974
 Chevron *Eulithis testata* 1972
 Chinese Character *Cilix glaucata* 1986
 Cinnabar *Tyria jacobaeae* 1972
 Clay *Mythimna ferrago* 1986
 Clay, Ingrailed *Diarsia mendica* 1975
 Clay, Purple *D. brunnea* 1994
 Clouded Border *Lomaspilis marginata* 1977
 Clouded Buff *Diacrisia sannio* 1972
 Clouded Drab *Orthosia incerta* 1975
 Copper Underwing *Amphipyra pyramidea* 1975
 Coronet *Craniophora ligustri* 1972
 Coronet, Marbled *Hadena confusa* 1972
 Dagger, Grey *Acronicta psi* 1975
 Dart, Archer's *Agrotis vestigialis* 1972
 Dart, White-line *Euxoa triticae* 1972
 December Moth *Poecilocampa populi* 1983
 Dot *Melanchra persicariae* 2002 (garden)
 Dotted Border *Agriopsis marginaria* 1988
 Drinker *Euthrix potatoria* 2007
 Dun-bar *Cosmia trapezina* 1975
 Dusky Brocade *Apamia remissa* 1972
 Early Tooth-striped *Trichopteryx carpinata* 1973

Early Grey *Xylocampa areola* 1974
 Eggar, Oak *Lasiocampa quercus* 2002
 Emerald, Common *Hemithea aestivaria* 1975 (One specimen seen 1994)
 Emerald, Grass *Pseudoterpna pruinata* 1994
 Emerald, Large *Geometra papilionaria* 1972
 Emerald, Light *Campaea margaritata* 1974
 Emperor *Pavonia pavonia* 1972 (One sighting of wing from predated moth 1992)
 Ermine, Buff *Spilosoma luteum* 1976
 Ermine, White *S. lubricipeda* 1997 (garden)
 Fan-foot *Herminia tarsipennalis* 1972
 Fan-foot, Small *H. nemoralis* 1972
 Flame *Axylia putris* 1972
 Flame Shoulder *Ochropleura plecta* 1994
 Footman, Common *Eilema lurideola* 2003
 Footman, Dingy *E. griseola* 1975
 Footman, Four-spotted *Lithosia quadra* 1972
 Footman, Muslin *Nudaria mundana* 1979
 Footman, Red-necked *Atolmis rubricollis* 1974
 Footman, Rosy *Miltochrista miniata* 1975
 Fox Moth *Macrothylacia rubi* 1972
 Frosted Orange *Gortyna flavago* 1974
 Garden Pebble *Evergestis forficalis* 1994
 Gem *Orthonama obstipata* 1975
 Ghost *Hepialus humuli* 1986
 Golden Y, Beautiful *Autographa pulchra* 1972
 Golden Y, Plain *A. jota* 1973
 Gothic *Naenia typica* 1977
 Gothic, Feathered *Tholera decimalis* 1975
 Green-brindled Crescent *Allophyes oxyacanthae* 1974
 Hawkmoth, Death's-head *Acherontia atropos*
 Hawkmoth, Elephant *Deilephila elpenor* 1972
 Hawkmoth, Small Elephant *D. porcellus* 1993
 Hawkmoth, Humming-bird *Macroglossum stellatarum* 1976 (One specimen seen 1995)
 Hawkmoth, Poplar *Laothoe populi* 1996
 Hawkmoth, Privet *Sphinx ligustri* 1978 (garden)
 Heath, Common *Ematurga atomaria* 1973
 Heart & Club *Agrotis clavis* 1972
 Heart & Dart *A. exclamationis* 1994
 Hebrew Character *Orthosia gothica* 1994
 Hebrew Character, Setaceous *Xestia C-nigrum* 1989
 Herald *Scoliopteryx libatrix* 1982
 Hook-tip, Barred *Drepana cultraria* 1972
 July Highflyer *Hydriomena furcata* 1977
 Knot Grass *Acronicta rumicis* 1972
 Lackey *Malacosoma neustria* 1978
 Lead Belle *Scotopteryx mucronata* 1972
 Lychnis *Hadena bicruris* 1972
 Magpie *Abraxas grossulariata* 2007 (garden)
 Magpie, Small *Eurrhypara hortulata* 1993
 Marbled Green *Cryphia muralis* 1972
 Marbled Beauty *C. domestica* 1978
 Marbled White Spot *Protodeltote pygarga* 1972
 March Moth *Alsophila aescularia* 1986
 Minor, Cloaked *Mesoligia furuncula* 1972
 Minor, Marbled *Oligia strigilis* 1972
 Minor, Middle-barred *O. fasciuncula* 1972
 Minor, Rosy *Mesoligia literosa* 1972

Minor, Tawny Marbled *Oligia latruncula* 1994
 Mother of Pearl *Pleuroptya ruralis* 1994
 Mottled Beauty *Alcis repandata* 1989
 Mother Shipton *Callistege mi* 1972
 Mouse Moth *Amphipyra tragopoginis* 1972
 Mullein Moth *Cucullia verbasci* 2003 (garden. One brood roadside 1993, otherwise none since 1972)
 Muslin Moth *Diaphora mendica* 1994
 Nutmeg *Discestra trifolii* 1972
 Old Lady *Mormo maura* 1972
 Peach Blossom *Thyatira batis* 1994
 Peppered Moth *Biston betularia* 1986
 Phoenix *Eulithis prunata* 1972
 Phoenix, Small *Ecliptopera silaceata* 1972
 Pinion, Pale *Lithophane hepatica* 1972
 Plume Moth *Stenoptilia pierodactyla* 1972
 Plume, White *Pterophorus pentadactyla* 1996
 Prominent, Coxcomb *Ptilodon capucina* 1976
 Prominent, Pale *Pterostoma palpina* 1978
 Prominent, Pebble *Eligmodonta ziczac* 1986
 Pug, Common *Eupithecia vulgata* 1979
 Pug, Double-striped *Gymnoscelis rufifasciata* 1975
 Pug, Foxglove *Eupithecia pulchellata* 1972
 Pug, Green *Chloroclystis rectangulata* 1994
 Pug, Grey *Eupithecia subfuscata* 1972
 Pug, Golden-rod *E. virgaureata* 1972
 Pug, Jasione *E. denotata jasionea* 1972 (presumed, from memory of larvae in seedheads of *Jasione montana* prior to 1972, though not identified at the time.)
 Pug, Lime-speck *E. centaureata* 1994
 Pug, Tawny Speckled *E. icterata subfulvata* 1972
 Pug, White-spotted *E. tripunctaria* 1972
 Pug, Wormwood *E. absinthiata* 1972
 Purple Bar *Cosmorhoe ocellata* 2007
 Puss Moth *Cerura vinula* 1974
 Quaker, Common *Orthosia cerasi* 1972
 Quaker, Powdered *O. gracilis* 1974
 Quaker, Red-line *Agrochola lota* 1972
 Quaker, Small *Orthosia cruda* 1972
 Ranunculus, Feathered *Eumichtis lichenea* 1972
 Ranunculus, Large *Polymixis flavicincta* 1974
 Rivulet *Perizoma affinitata* 1972
 Rivulet, Small *P. alchemitata* 1972
 Royal Mantle *Catarhoe cuculata* 1972
 Rustic *Hoplodrina blanda* 1972
 Rustic, Autumnal *Paradiarsia glareosa* 1972
 Rustic, Black *Aporophyla nigra* 1977
 Rustic, Brown *Rusina ferruginea* 1972
 Rustic, Common *Mesapamia secalis* 2004
 Rustic, Flounced *Luperina testacea* 1978
 Rustic, Heath *Xestia agathina* 1972
 Rustic, Hedge *Tholera cespitis* 1972
 Rustic, Mottled *Caradrina morpheus* 1972
 Rustic, Northern *Standfussiana lucerneae* 1972
 Rustic, Rosy *Hydraecia micacea* 1972
 Rustic, Six-striped *Xestia sexstrigata* 1972
 Rustic, Square-spot *X. xanthographa* 1995
 Sallow Kitten *Furcula furcula* 1973
 Sallow, Pink-barred *Xanthia togata* 1987

Scallop Shell *Rheumaptera undulata* 1976
 Scalloped Hazel *Odontopera bidentata* 1986
 Scalloped Oak *Crocallis elinguaris* 1994
 Scorched Wing *Plagodis dolabraria* 1986
 Shark *Cucullia umbratica* 1972
 Shark, Chamomile *C. chamomillae* 1972
 Sharp-angled Peacock *Semiothisa alternaria* 1986
 Shears *Hada nana* 1972
 Shoulder-stripe *Anticlea badiata* 1976
 Silver Y *Autographa gamma* 1995
 Snout *Hypena proboscidalis* 1994
 Snout, Pinion-streaked *Schrankia costastrigalis* 1979
 Spectacle *Abrostola triplasia* 1994
 Spectacle, Dark *A. trigemina* 1994
 Spinach, Dark *Pelurga comitata* 1986
 Square-spot, Double *Xestia triangulum* 1972
 Square-spot, Small *Diarsia rubi* 1998
 Straw Dot *Rivula sericealis* 1972
 Streak *Chesias legatella* 1972
 Streamer *Anticlea derivata* 1977
 Swallow-tailed Moth *Ourapteryx sambucaria* 1974
 Swift, Common *Hepialus lupulinus* 1973
 Sword-grass, Dark *Agrotis ipsilon* 1976
 Thorn, August *Ennomos quercinaria* 1975
 Thorn, Canary-shouldered *E. alniaria* 1972
 Thorn, Early *Selenia dentaria* 1994
 Thorn, Feathered *Colotois pennaria* 1988
 Thorn, Purple *Selenia tetralunaria* 2001
 Tiger, Cream-spot *Arctia villica* 1972
 Tiger, Garden *A. caja* 1972 (One specimen seen 1994)
 Tiger, Ruby *Phragmatobia fuliginosa* 2007 (garden)
 Treble-bar *Aplocera plagiata* 1972
 True Lover's Knot *Lycophotia porphyria* 1972
 Turnip Moth *Agrotis segetum* 1976
 Tussock, Pale *Calliteara pudibunda* 1989
 Twenty-plume *Alucita hexadactyla* 1972
 Umber, Scarce *Agriopsis aurantiaria* 1978
 Uncertain Moth *Hoplodrina alsines* 1972
 Vapourer *Orgyia antiqua* 1994
 V-pug *Chloroclystis V-ata* 1972
 Wainscot, Common *Mythimna pallens* 1987
 Wainscot, Shoulder-striped *M. comma* 1994
 Wainscot, Smoky *M. impura* 1972
 Wave, Common *Cabera exanthemata* 1988
 Wave, Common White *C. pusaria* 1994
 Wave, Cream *Scopula flos-lactata* 1972
 Wave, Mullein *S. marginipunctata* 1972
 Wave, Riband *Idaea aversata* 1994
 Wave, Satin *I. subsericeata* 1972
 Wave, Single-dotted *I. dimidiata* 1994
 Wave, Small Fan-footed *I. biselata* 1994
 Wave, Small Yellow *Hydrelia flammeolaria* 1972
 Willow Beauty *Peribatodes rhomboidaria* 1986
 Yellow, Barred *Cidaria fulvata* 1972
 Yellow Belle *Aspitates ochrearia* 1972
 Yellow Shell *Camptogramma bilineata* 2007
 Yellow, Speckled *Pseudopanthera macularia* 1994

Yellow-tail *Euproctis similis* 1988
 Yellow Underwing, Broad-bordered *Noctua fimbriata* 1986 (garden)
 Yellow Underwing, Large *N. pronuba* 1983 (garden. One specimen seen 1995)
 Yellow Underwing, Least *N. interjecta* 1972
 Yellow Underwing, Lesser *N. comes* 2008 (garden)
 Yellow Underwing, Lesser Broad-bordered *N. janthe* 1986 (garden)

Butterflies

Dates show year during which the species (until then regularly present) disappeared, with year of reappearance and/or date last seen.

Admiral, Red *Vanessa atalanta* disappeared during 1983, reappeared 1993
 Blue, Common *Polyommatus icarus* dis 1973, re (one specimen, last seen) 1993
 Blue, Holly *Celastrina argiolus* dis 1974, re 1991, last seen 1993
 Blue, Silver-studded *Plebejus argus* dis 1975, re (last seen) 1993
 Brown, Hedge *Pyronia tithonus* survived throughout, massively reduced numbers.
 Brown, Meadow *Maniola jurtina* dis 1980, re 1993, last seen 1996
 Brown, Wall *Lasiommata megera* dis 1977, re 1993, last seen 2002
 Comma *Polygonia C-album* last seen 1973
 Copper, Small *Lycaena phlaeas* dis 1980, re 1993, last seen 1994
 Fritillary, Dark Green *Argynnis aglaja* last seen 1973
 Fritillary, Heath *Mellicta athalia* seen throughout 1960s, not recorded on list. Dis.
 Fritillary, Marsh *Eurodryas aurinia* last seen 1977
 Fritillary, Silver-washed *Argynnis paphia* last seen 1973
 Grayling *Hipparchia semele* last seen 1976
 Hairstreak, Green *Callophrys rubi* seen throughout 1960s, not recorded on list. Dis.
 Heath, Small *Coenonympha pamphilus* last seen 1976
 Orange-tip *Anthocharis cardamines* dis 1973 on roadside, last seen (one specimen) 2019. Present every year in garden to date (2023) but sightings sporadic, never more than 2.
 Painted Lady *Cynthia cardui* dis 1977, re 1993, last seen 1998
 Peacock *Inachis io* dis 1975, re 1993, last seen 1997
 Ringlet *Aphantopus hyperantus* dis 1977, re (seen once) 1994 and (once) 2007
 Skipper, Large *Ochlodes venata* dis 1976, re (once) 1994 and (once) 2007
 Skipper, Small *Thymelicus sylvestris* dis 1980, re (last seen) 1994
 Tortoiseshell, Small *Aglais urticae* dis 1980, re 1993, last seen 1999
 White, Green-veined *Pieris napi* dis 1974 from roadside, re 1994. Present in garden throughout.
 White, Large *P. brassicae* dis 1984, re 1993
 White, Wood *Leptidea sinapis* dis 1973
 White, Small *P. rapae* survived throughout, massively reduced numbers.
 Wood, Speckled *Pararge aegeria* survived throughout, massively reduced numbers.
 Yellow, Clouded *Colias croceus* dis 1974, re (last seen) 1993

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Acknowledgements: Thanks to Rosaline Murphy for kindly confirming identifications, to Stella Turk for unvarying encouragement, to Sarah Corbett and Jenny Smith for help with proof-reading and comments, and to Robin Menneer for much practical help towards concluding a very long marathon. All data are from original study and observation, using mainly ordinary handbooks for identification, including those listed below, with nomenclature updated somewhat haphazardly. Newspaper sources quoted as and where stated.

Handbooks used in identification of species include:-

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Brief summaries of this survey have previously appeared as follows:-

Carter, S. *Survey of a section of roadside hedge approximately one mile in length, in relation to the use of flailcutters. West Penwith district, 1970 - 1985.* Unpublished pamphlet.

Carter, S. *Death by Flail.* Peninsula Voice, April 1985.

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Carter, S. *The Disaster of the Hedge Flail.* The Lizard Field Club Magazine 1986: Vol VII nos 3 and 4.

Menneer, R. *Wildlife Revival in Cornish Hedges.* Dyllansow Truran Publications, 1994.

Carter, S. *The Life and Death of a Flailead Cornish Hedge* and the related paper Carter, S. *Wildlife and the Cornish Hedge* are available on the Cornish Hedges Library website at www.cornishhedges.co.uk

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