

# Proceedings of The Hampshire Field Club

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VOL. XXIII, PART 1

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1964

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## The Distribution of Gorse (*Ulex europaeus* L.) in the New Forest in relation to former Land Use

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(Communicated July 1963)

THIS paper deals with part of an investigation into the ecological history of the New Forest. In the course of this investigation all the major areas of gorse (*Ulex europaeus* L.) in the Forest were examined and there came to light a distinctive range of archaeological sites to which there appear to be no published references, and the origin and significance of which have never been evaluated. The correlation between the distribution of gorse in the New Forest and these and other features resulting from disturbance of the ground by human activity is discussed here, and details are given of the archaeological sites found. Brief summaries have already been published in the *Bulletin* of the Southampton Archaeological Society for September 1962 and *Nature* for 8 June 1963.<sup>1</sup>

### *Gorse locations*

A survey of the distribution of gorse in the New Forest made by C.R.T. in 1961 showed that of approximately 37,000 acres of Open Forest, mainly heathland, approximately 8,000 acres were occupied by gorse. Two further aspects of its distribution emerged when the areas of gorse were plotted on a one-inch to the mile map. Firstly, the species was distributed in well-defined concentrations and not in a uniform scatter; secondly, broadly speaking, these concentrations were peripheral to the main areas of heathland and often near to existing settlements. In detail the gorse stations are shown by our field notes to fall into four categories:

- A. (1) Following ditches and/or banks along roadsides and along the edges of trackways across the heaths.
- (2) On and round the workings and spoil heaps of abandoned sand, gravel and marl pits, which themselves tend to be close to habitations or along roads and tracks.
- (3) Following the edges of grass leys or 'lawns', including those areas (totalling 1,000 acres) cropped and reseeded under the New Forest Pastoral Development Scheme between 1944 and 1948.<sup>2</sup>

1. 'Vegetation of Sites of Previous Cultivation in the New Forest', *Nature*, Vol. 198, pp. 977-8.

2. D.R. Browning, 'The New Forest Pastoral Development Scheme', *Agriculture*, LVIII, 1951, pp. 226-33.

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- (4) On some tumuli, normally where they have been disturbed by rabbits or excavation. 175 extant barrows were recorded in the area by the Ordnance Survey between 1954 and 1961, and in 133 cases the barrows had been mutilated. The vegetation was noted for 103 of these, and in 29 cases, or about 30 per cent., gorse was recorded. An examination of a sample of those barrows on which the species was not recorded, in July 1963, showed that gorse occurred in all but a few cases, although it was not by any means dominant.
- (5) On spoil-heaps along railway cuttings.
- (6) On ground disturbed by military and other operations during World War II, when Air Ministry and War Department requisitions totalled 8,050 acres, including bombing ranges, camps and airfields. Most localities where the ground was violently disturbed at that time now carry gorse, and vehicle tracks of this date are also sometimes similarly marked.

In the preceding cases gorse may be described as an early and successful colonist of ground where the soil horizons have been inverted or modified or where the soil has been completely removed. In this latter case—as on gravel workings—the species has an advantage over competitors in that it is a legume and can fix its own nitrogen.

- B. Areas of gorse were found to be characteristic of heath edges close to settlements from which a substantial head of stock was turned onto the Forest. Gorse, usually with a ground flora of grasses (*Agrostis setacea* and *Molinia coerulea*) typically fringed heath edge settlements, giving way, sometimes after a belt of gorse and heather (*Calluna vulgaris* and *Erica* spp.), to pure heather moor two or three hundred yards out on the heath. This zone of gorse is subject to particularly heavy grazing and trampling, especially by dairy cattle turned out between milkings, and consequently heavy dunging of the land.
- C. Large areas of gorse, sometimes in distinct patches close to habitations and elsewhere in isolated sites on open heathland, occupy sites which have at some time been enclosed and/or which can be shown to have been under an agricultural use. Details of each individual site are given in Appendix I, whilst their dating and significance are discussed below.
- D. It was estimated that approximately one-quarter of the area of gorse in the New Forest does not fall in the categories so far listed. This residue is distributed in discreet blocks as follows: in the north of the Forest, on the upper slopes of valleys; in the south-west on the sides of small hollows; and on isolated plateau sites at Handy Cross Plain (SU212073), Goatspen Plain (SU225023), Fritham Plain (SU225135), Black Down (SU342068), Yew Tree Heath (SU370065) and in the centres of Beaulieu Heath (East) and Hatchet Moor. In the case of Goatspen Plain the place names 'Goatspen', 'Pigsty' and 'Cot' do suggest a previous agricultural use. A small enclosure, probably a stock-pound, may have been the 'goatspen' itself. On some sites the cover of gorse was too dense to make a complete examination.

### *Discussion of gorse distribution*

The foregoing demonstrates the broad correlation between the distribution of gorse in the New Forest and ground disturbed by various human activities. These activities, whilst perhaps not the only determinant of the distribution, have certainly exerted a major influence. A similar conclusion was reached by Dr N. W. Moore in his study of the Dorset heaths where '*U. europaeus*' is closely associated with past human activity; it is virtually restricted to

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boundary banks, old tracks, the sites of field plantations. It may not even be a native of the area.<sup>3</sup> Dr Moore adds (private communication) that gorse in Dorset is confined to disturbance features which only on cliffs and dunes are not induced by man.

Strong anthropogenic influences on the distribution of gorse have been noted in many parts of the world.<sup>4</sup> Gorse has been widely cropped for forage and fuel. Gehu-Franck's investigations at the Cap Frehal, Cote-du-Nord, France, show that *Ulex europaeus* is much more exacting in its requirements of certain plant nutrients and mineralizable salts, and demands a lower carbon: nitrogen ratio than other heathland species, e.g. *Calluna vulgaris* and *Erica* species. These conditions are only fulfilled on acid heathland soils by the destruction of the podzol and/or the provision of additional material. In the case of the gorse localities in categories A, B and C Gehu-Franck's explanation might operate in the following ways:

- A. Man's disturbance of the ground has inverted the soil horizons, releasing the plant nutrients from the podzol. In the cases of A (1) and to a lesser extent in A (2) and A (3) stations, additional base-rich materials will have been provided by calcareous grit washed to the sides of roads where it had been used as surfacing, the dung and urine of livestock and the not inconsiderable waste deposited by holidaymakers.
- B. The zone of gorse forming the penumbra of settlements is subject to especially heavy dunging by livestock and more of the necessary nutrients are therefore made available than further out on the heaths. The dairy stock turned out receive supplementary fodder on the Forest edge holdings. The customary assumption that stock constitute a drain on soil fertility may thereby be invalidated, the holdings acting as a 'buffer-zone' against long-term soil downgrading resulting from the removal of minerals and nutrients from the Forest in the stock and milk sold.
- C. The release of plant nutrients and mineralizable salts would be fulfilled here by former ploughing of the sites or these could have been supplied and the podzol modified by night-folding of livestock, manuring, marling or liming. Soil pits dug in the C sites revealed no podzol, in contrast with marked podzols on the heaths outside.

It is not at present possible to relate explanations of this type to category D of gorse stations. Caution also requires us to note that gorse stations which have had some previous agricultural use may conceivably have been chosen for agriculture because they already, naturally, carried gorse. Human land use may not first have provided the conditions necessary for the establishment of gorse but merely have testified to the pre-existence of gorse brakes. Gorse and bracken have long been used as indicators of an above-average quality heathland soil. As lately as 1944-48 sites in the New Forest were chosen for cropping on the basis of the old saw, 'Under bracken lies gold, under gorse lies silver, under heather lies lead.' On some of the sites (see Appendix I) the remains of abandoned field systems of much earlier periods are still to be seen. In the absence of historical documentation of these sites it is impossible to establish their vegetation prior to the initial enclosure except perhaps by soil pollen analysis. Soil samples for pollen analysis have been taken from representative sites at our request by Prof. G. W. Dimbleby, but his analyses will take some time to complete. With respect to sites clearly disturbed by man's activities we may here conclude that the present day distribution of gorse is explicable on Gehu-Franck's hypothesis.

3. N. W. Moore, 'The Heaths of Dorset and their Conservation', *J. Ecol.*, 50, 1962, p. 386.

4. See e.g. the literature cited by J. Gehu-Franck, 'Données nouvelles sur l'écologie d'*Ulex Europaeus* L.: relations avec Substratum dans une lande semi-naturelle', *Bull. Soc. Bot. Nord France*, XIV, 1961, and in Jones & Tubbs, *Nature*, *loc. cit.*

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### *Dating and Significance of C sites*

The twenty-four sites listed under category *C* (see Appendix I) are of particular interest, because they demonstrate how long a vegetation pattern consequent upon the abandonment of agricultural land will persist.

### *Sites 1-12*

The first twelve sites are grouped together because they are each where up to four enclosures, comparable in size with existing Forest-edge paddocks, have been abandoned on heathland adjacent to present-day settlements. These settlements are chiefly the straggling, linear villages round the margins of Beaulieu Heath, East and West. A typical enclosure in this class might be 500 ft. x 300 ft., with a bank 7 ft. wide and two or more feet above the ground level and four feet above the bottom of the outside, dry ditch. It would be near or actually abutting an occupied paddock or kitchen garden formed in much the same way. Usually the enclosure and the strip, if any, between it and the occupied holdings would be covered with dense gorse, or with a moderately dense scatter of gorse bushes and a ground vegetation of grasses (*Agrostis* and *Molinia*) or associated with a deep cover of bracken (*Pteridium aquilinum*). This vegetation would distinguish the enclosure, sometimes very sharply, from the *Callunetum* of the heath farther out from the settlement.

Many of these enclosures, or sets of enclosures, are marked incompletely on the 2½ or 6-inch O.S. maps. On the 6-inch the symbol used is commonly that for a field boundary, but on the 2½-inch a blue line (as for a drain) is often used, although the outside ditches of the enclosures are invariably dry. On the 6-inch sheets it can be seen that the symbols used for rough grazing (here, heather moor) and scrub (in this case, gorse) are conventionally alternated over the heathland. Occasionally, however, the intakes are not left blank like the cultivated fields, which is normally the case, but are marked as rough grazing. Very occasionally they have been marked as scrub. This suggests that most of them were no longer cultivated by the time of survey in the late nineteenth century, and that some, at least, were already characterised by a cover of gorse. Most of the enclosures have sharper banks and less silted ditches than the more familiar prehistoric earthworks of southern England. They appear either to be recent in origin, or well kept up until recently, yet local enquiries have produced no one among the oldest inhabitants or among the old-established families of Forest keepers who can remember them in use.

The present settlements show complicated systems of inner and outer banks, usually with a majority of ditches facing towards the heathland, suggesting that they have evolved as series of encroachments creeping in from the boundary of the Crown Lands. Printed sources confirm this and establish that persistent efforts were made during the late eighteenth and early nineteenth centuries to halt the process. The 'saw tooth' edge of abandoned enclosures may best be dated by tracing the process of illegal encroachment and the Crown's attempts to stem it.

The first record of illegal encroachment of this kind on the New Forest appears to be a bundle of presentments to the Court of Attachment from 1749-52.<sup>5</sup> These are stereotyped (the acreages encroached are always given as the same, the offender's name only changing, and the localities are not specified) and seem from their context to represent merely the assertion of the theoretical right of the Crown in the soil rather than a genuine attempt to check encroachment. The offenders 'did unlawfully enclose and with a high hedge and a great ditch did fence in', in each case two acres. A more comprehensive review of illegal

5. Public Record Office, L.R.R.O. 37/27-32.

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encroachment is given by the fifth *Report* of Commissioners on Woods, Forests and Land Revenues, 1789. This refers to 902 acres of encroachments on the New Forest, said to consist in the main of 'cottages built by poor people', held by the trespassers without payment or acknowledgment to the Crown. A map<sup>6</sup> accompanying the *Report* shows a fringe of encroachments round the edge of the Crown Land, consisting almost entirely of cottages, gardens and small fields. The position regarding these encroachments is vividly described by Gilpin. He wrote:

'The Forest is continually preyed on by the encroachments of inferior people. There are multitudes of trespassers on every side of it, who build their little huts and inclose their gardens and patches of ground without leave or ceremony of any kind. The under-keepers, who have constant orders to destroy all these inclosures, now and then assert the rights of the forest by throwing down a fence; but it requires legal process to throw down a house of which possession has been taken. The trespasser, therefore, as on other wastes, is careful to rear his cottage, and get into it, as quickly as possible.'

A subsequent Commission sat in 1801-02<sup>8</sup>. This considered a total of 654 encroachments comprising 481 houses, 52 'other buildings' and 334 acres of land, made between 1740 and 1801. Witnesses before the Commissioners specified the year in which each encroachment had been made, but the usefulness of the annual totals is impaired by their tendency—only evident on analysing the figures—to attribute many of the encroachments to 'about 20' or 30 or 40 years ago. Nevertheless, the broad pattern of the encroachments corresponds well with the overall, fluctuating increase in the number of enclosure bills for the whole country during the latter half of the eighteenth century. There are further indications in the figures that encroachment was especially active during the period of soaring agricultural prices following 1793. The map with the 1789 *Report* shows—to take as an illustration the villages round Hatchet Moor—that enclosures from the Forest edge then occupied half their present-day area. It is instructive that the closely-succeeding Acts of 50. Geo. III (1810), 51. Geo. III (1811) and 52. Geo. III (1812), all of which were concerned with the problem, make it clear that encroachments had 'of late years been much increased.' These Acts reveal that the Crown was unable to throw down an encroachment on which a house stood, save by complicated legal procedures and at a cost greater than the value of the site. Certainly, none of the encroachments mentioned in 1801 had been thrown open by 1812. All the Acts convey the impression that the Crown felt obliged to accept the older and wartime encroachments but had definitely set its face against future attempts. Indeed the third of another series of *Reports* by the Commissioners of Woods, Forests and Land Revenues, published in 1819, claimed that encroachments 'have been completely checked.' The preamble to the Deer Removal Act, 1851, however, states that before that date the Crown had not possessed the machinery nor found it financially worthwhile to throw open any encroachment on which a cottage stood—an interesting reflection on an age which is usually blamed for 'stealing the common from the goose' by means of enclosure Acts.

The optimism of the 1819 *Report* was not entirely justified since the *Report* of a Select Committee on the Woods, Forests and Land Revenues of the Crown as late as 1848 records a

6. Drawn by Richardson, King and A. & W. Driver. Unfortunately it is impossible to identify many individual encroachments either from this or from the returns of the 1801 Commissioners.

7. Rev. William Gilpin, *Remarks on Forest Scenery*, 1834 edn., II, p. 40. The first edition was 1784. It is ironic that Gilpin was himself an offender and that his encroachment, for the site of the schoolhouse at Boldre, was a case considered by the 1801 Commissioners.

8. *Return made by Commissioners . . . (1801-2) As to Incroachments &c. in the said Forest*, London, 1853. The 1801 Crop Returns (Public Record Office, H.O. 67/24) add no further information.

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few encroachments in the 1830's and '40's. One phrase in the decision of the Court of Swainmote and Attachment as to some offences of 'making rolling fences' may help to explain the almost invariable use of banks and ditches to demarcate heathland holdings. The enclosures were to be thrown out 'and ditches to be made, and the parties to pay the costs.' Ditches were the most permanent form of boundary marker available.

It would seem that the years between 1789 and about 1815 had seen especially active encroachment. There are some further indications of this. Very few encroachments are shown on the first O.S. sheets (the two-inch and three-inch of 1797) but they do often appear on the 1909-10 six-inch sheets. In one case at Burley an enclosure is sited in such a way as to reveal that it post-dates a road built between 1797 and 1805. There are local tales of the cropping of parts of the Forest heaths during the Napoleonic Wars, which receive some corroboration from accounts of the cultivation of similar heathland in the district round the Forest. About 170 acres of heath at South Stoneham were brought into cultivation between 1808 and 1812, by T. H. Scott, who received an award from the Society of Arts for this reclamation.<sup>9</sup> In 1803, 7,000 acres of 'waste lands' in Christchurch parish, which extends to the Forest perambulation, were allotted by the Enclosure Commissioners and much was thereupon enclosed by the recipients. The embanking, manuring, sheep-folding, and growing of crops including turnips and cereals, on part of this land—formerly 'covered with short heath and a few furze scattered'—between 1804 and 1806 was described in detail by Rev James Willis, the secretary of the Christchurch Agricultural Society, which was offering premiums to labourers who enclosed small parcels of the heath.<sup>10</sup>

In a second paper<sup>11</sup> Willis described the progress of enclosure and cultivation between 1804 and 1807 on another part of this heath round what is now Hill Farm, Thorney Hill (SZ203990), which was established at that time. This heath, between Poors Common and Plain Heath, was originally 'chiefly covered with long and short heath but partially intermixed with fern and furze, usually pointing out which is the best quality of soil'. The map which Willis gives of this site makes it possible to trace many of the original banks and ditches today, except where they have been obliterated by later house building and by Holmsley aerodrome. The banks are remarkably similar to those of the twelve Forest sites under consideration, even though they have presumably been maintained whereas those of the abandoned enclosure will have long been neglected. Willis noted that the land brought into cultivation had risen in value from 1s. to 25s. per acre, and emphasised the need to crop the heaths for grain during the Napoleonic blockade. Although the holdings he described belonged to rich proprietors, other parts of the Christchurch heathland were being tilled by labourers and it seems likely that the illegal encroachments within the perambulation were not dissimilar, and were made in response to the same price stimulus. Admittedly, direct evidence of cropping in the abandoned intakes is limited, but those at Hill Top (a) (Site 6) show regular undulations which may be narrow rig; there are three well-marked parallel furrows in the Hatchet Gate enclosure (Site 1); and the Furzey Lodge (b) site (3) shows undulations which may also be narrow rig.

It has already appeared that encroachment diminished sharply about 1815. After 1813 farm product prices fell steeply enough not only to stem the advance of enclosure and cultivation throughout the country, but to cause a margin (admittedly narrow) of cultivated land to

9. *Papers on Agriculture . . . published by the Society of Arts*, 1810-47, pp. 34-8.

10. Rev James Willis, 'On Waste Land', *Communications to the Board of Agriculture*, VI, Pt. 1, 1808, pp. 16-30.

11. 'Communications on Fences', *Comm. to Board of Agric.*, VI, Pt. 1, pp. 237-51.

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be abandoned. The twelve sets of abandoned intakes show no signs of occupation sites and presumably such outermost sites, without dwellings, would be the first to be deserted if prices fell or if the Crown intensified its pressure against encroachments. In sum, these sites seem to represent the margin of encroachment for cultivation during the high price period of the Napoleonic wars, abandoned early during the ensuing slump. This accords with the likely behaviour of small agricultural producers in the New Forest in the face of rapidly rising and falling product prices. There are indications in the figures of cattle and ponies run on the Forest by commoners from 1910 to World War II that these men react positively to price movements, that is, increase their inputs when prices rise and curtail them when prices fall. The number of stock rose during the First World War, slumped during the inter-war depression and rose again during the Second World War. The Committee of 1947 which provides these figures in its *Report*<sup>12</sup> firmly relates this fluctuation to movements in the market price of livestock. Whereas total national livestock output rose during the inter-war years because falling prices were more than offset by the falling cost of purchased feed, commoners whose beasts feed mostly on the Open Forest were much less influenced by the countervailing fall in feed costs. The rapid extension and quick abandonment of enclosures for cultivation during the early nineteenth century is consistent with a similar positive reaction to product price movements.

### Site 13

This is situated at Milking Pound Bottom, and is an abandoned enclosure of about one acre, demarcated by gorse and similar in all respects to Sites 1-12 except for its isolated position on open heathland about three-quarters of a mile from the nearest habitations. The place-name suggests a pastoral use for this enclosure, possibly dating from the same period as sites 1-12.

### Sites 14-21

These sites are grouped together because they have in common their isolated position out on the heaths and because their banks and ditches (often traceable only in broken sections) embrace considerably larger areas than sites 1-13. Their banks and ditches are much more wasted and silted than those of the previous 13 sites and they probably date from more than one earlier period.

The largest, most complete and most elaborate site is a complex of enclosures near Crockford Bottom, Hatchet Moor. The 'Crockford complex' covers over 200 acres and contains at least one possible occupation site. In addition, the nearby place-name 'Shipton Holms' is suggestive. Size alone makes it highly improbable that this was an illegal encroachment. The possibilities of early silvicultural enclosure have been excluded. The enclosures may have been to grow fodder for the deer; they may have been those of a grange of the Cistercian monks at Beaulieu. Neither of these suggestions is so far substantiated by documentary evidence, indeed no written record of the site has anywhere been found. A road made between 1798 and 1805 cuts diagonally across part of the site and presumably postdates it. Exact dating awaits further documentary research and a programme of excavation, a preliminary survey for which has been carried out for us by Mr H. A. Collinson and the New Forest Section of the Hampshire Field Club.

Of the remaining sites, three, Plain Heath, Long Slade Bottom and Whitefield Moor, wholly or partially occupy areas which subsequently have been chosen for reseeded. The

12. *Report of the New Forest Committee 1947*, Cmd. 7245, p. 51.

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choice of these sites for cropping and reseedling between 1944 and 1948 has already been remarked. No occupation sites have been found near them, but it would scarcely seem likely that they were farmed from a distance. Dating evidence is lacking; the sites are not mentioned in any of the eighteenth and nineteenth century sources to which we have referred.

### Site 22

This site is on the south side of Norley Inclosure and consists of a group of small enclosures, in size like Sites 1-13 but similar in degree of wastage of banks and silting of ditches to the enclosures of the Crockford complex, to which it may be related. At least two of the intakes continue into the present Norley Inclosure and presumably pre-date it. Norley Inclosure was planted sometime between 1808 and 1820, but the enclosures are not marked on the 1789 map, nor on the Ordnance Survey map of 1797. Should this complex of enclosures together with that close by at Crockford prove to be contemporaneous they would represent an attempt at cultivation on the New Forest heaths unrivalled in scale.

### Sites 23 and 24

Here ploughing marks are traceable on the ground. The sites bear no signs of the banks and ditches enclosing other cultivation sites, although the possibility of other less-enduring forms of enclosure cannot be ruled out. North of Durns Town (Site 23) narrow-rig is clearly visible and at certain points on Beaulieu Heath (East) (Site 24) this is also the case. In this latter area both the Ordnance Survey and the late O. G. S. Crawford noted 'strip cultivation' and we and Dr G. W. Dimbleby have independently noticed regular undulations in the ground when driving over parts of the heath on which ploughing marks are not visible. Much of Beaulieu Heath (East) awaits the removal of a dense cover of gorse before adequate observations can be made, but large areas now occupied by gorse both here and near Durns Town were apparently once cultivated, probably on a strip system. There is no podzol in the soil profile beneath these areas; the configuration of the gorse patches suggests that long, narrow strips of land were ploughed out across the heaths to form a 'saw-edge' boundary with the heather moor; and finally the Ordnance Survey field staff recorded what they considered to be a hollow-way or field bank of medieval date at Site 23.

In view of the usual enclosure of sites of cultivation elsewhere on the heaths the lack of any forms of embankment round these ploughing features calls for comment. We have considered the possibility that they were deliberately cropped with gorse. Crown officials may have done this to provide browse for the deer or the commoners may have been permitted to do so as long as the areas remained unenclosed or perhaps surrounded with only a light fence. Although Gilpin,<sup>13</sup> at the turn of the 18th and 19th centuries, and Briscoe Eyre in 1883<sup>14</sup> state that the foresters cut furze for firing brick kilns and for fodder we have found no references to its actual cultivation in the New Forest.<sup>15</sup>

### Conclusion

There is considerable evidence to show that *Ulex europaeus* is largely an anthropogenic plant in the New Forest. The features of human land use with which it is associated include

13. Gilpin, *op. cit.*, II, p. 39.

14. G. E. Briscoe Eyre, *The New Forest, its Common Rights and Cottage Stock-Keepers*, 1883, p. 48.

15. Cf. for example Thomas Page, 'On the Culture of Furz', *Annals of Agriculture*, IX, 1788, pp. 215-7, and Elly Sandham, 'On the Cultivation and Preparation of Gorse as Food for Cattle', *J. Roy. Agric. Soc. England*, 1st ser., VI, 1846, pp. 523-8. The nearest references to the cultivation of gorse in these and other sources come from Surrey.



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many more agricultural sites on the Open Forest than are allowed in the sparse published local history. Archaeologically the plant's interest lies in the fact that many of its stations are indicative of abandoned cultivation sites, a relationship which might well be tested in other areas. The most important category of the sites so marked in the New Forest is the 'frozen', abandoned margin of Napoleonic War cultivation, a feature only recoverable in exact location and extent by archaeological fieldwork. This feature has seldom been satisfactorily identified elsewhere and in any case it will rarely have survived subsequent ploughing campaigns.<sup>16</sup> The peculiar legal position since the Crown asserted its rights over the New Forest during the 19th century has prevented the reclamation and obliteration of the remains of previous cultivation here. That it is primarily the legal situation which has 'frozen' these remains and not inherent defects of soil which inhibit cultivation is obvious from the success of the New Forest Pastoral Development Scheme or from the present state of Holbury Purlicu, where unbroken heather moor is separated from agricultural crops on similar soil only by the arbitrary boundary fence against the Crown land. This fortuitous legal circumstance has left the New Forest in an ideal condition for the study of past margins of cultivation.

### APPENDIX I

#### GAZETTEER OF CATEGORY C SITES

<i>Name and Map Ref.</i>	<i>Description</i>
1. Hatchet Gate, SU368018.	Rectangular, banked-and-ditched enclosure, c. 700 ft. × 450 ft., bank 7 ft. wide, 2 ft. above ground and 4 ft. above ditch bottom. Three parallel furrows run W.-E. within enclosure. Next but not abutting onto modern settlement.
2. Furzey Lodge (a), SU369022.	Abandoned intake abutting modern gardens and paddocks, etc. Banks-and-ditches, and size of enclosure similar to 1.
3. Furzey Lodge (b), SU367024	Abandoned enclosure of c. 4 acres; some traces of internal banks; two short sections of bank outside enclosure and isolated from it. Banks-and-ditches of enclosure similar to 1, though rather more wasted in parts. Abuts modern gardens and paddocks. Ridge-and-furrow marks over east side of enclosure.
4. Rossen Gutter, SZ345984.	Four fields abutting each other and each comparable in size to 1; close to existing settlement. Westernmost intake has more wasted banks than remainder, and lengths of bank are missing. Banks-and-ditches otherwise similar in size to 1.
5. Beaulieu Rails, SZ368984.	Four well marked intakes similar in all respects to 1, in one case abutting existing settlement, in the remaining three separated from it by road.
6. Hill Top (a), SU401040.	Two intakes of c. $\frac{1}{2}$ acre each, banks-and-ditches similar to those of 1. Separated from existing settlement by lane.
7. Hill Top (b), SU403028.	Three intakes of $\frac{1}{2}$ - $\frac{3}{4}$ acre each, banks-and-ditches similar to those of 1. Separated from existing settlement by lane.
8. Burley Golf Course, SU220025.	One or more intakes; banks broken and flattened, and picture generally distorted by golf course. One section of bank apparently undisturbed by recent activity is similar in size to those of 1.
9. Coxhill Lodge, SZ303996.	Five intakes each of up to c. $\frac{1}{2}$ acre, banks-and-ditches similar to those of 1. Close to existing habitation.
10. Shirley Holms, SZ303980.	Intake of c. $\frac{1}{2}$ acre abutting on modern habitation; banks-and-ditches similar to those of 1.
11. Burley Moor, SU213043	Bank-and-ditch similar in dimensions to those of 1, abutting present habitations and enclosing 3-4 acres; lane traverses enclosure.
12. Latchmore Bottom, SU184123.	Bank-and-ditch of similar dimensions to those of 1 partially enclosing an area of upwards of 40 acres adjacent to existing settlement; eastern side of enclosure (i.e. that facing Forest) missing, possibly destroyed when enclosure thrown open.

16. The only study we have been able to find of the vegetation patterns on abandoned arable land of this period is D. J. Anderson, 'The Structure of Some Upland Plant Communities in Caernarvonshire', *J. Ecol.*, 49, 1961, pp. 369-76, 731-38, although there are scattered references in the literature to the survival of small patches of Napoleonic period narrow rig on high ground along the Welsh border, on Dartmoor and in the Wessex chalk-lands.

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<i>Name and Map Ref.</i>	<i>Description</i>
13. Milking Pound Bottom, SZ295994.	Single enclosure of about an acre; banks-and-ditches similar in dimensions to those of 1. Isolated site <i>c.</i> $\frac{1}{2}$ mile from nearest habitation.
14. 'Crockford complex'. Hatcher Moor, SZ355993.	Large area (upwards 200 acres) covered with complex of enclosure banks-and-ditches, extending on both sides of B.3054 Lymington-Beaulieu road; bank fragments extend to Beaulieu Rails and Greenmoor reseeded areas. Single raised platform in one of the enclosures may be a former occupation site; this enclosure also includes a copse known as 'Shipton Holms', also suggesting an occupation site. Banks and ditches generally more wasted than in sites 1-13; banks rounded in cross-section, 9-12 ft. wide, bottom of ditch 1-2 $\frac{1}{2}$ feet below crown of bank. Preliminary survey suggests that variation in bank dimensions may represent two phases or periods during each of which parts of the area were enclosed.
15. adjacent to Wilverley Inclosure, SU233010.	Two enclosures, banks broken and some lengths missing; one section of bank continues into Wilverley Inclosure (1775) and presumably pre-dates it. Banks-and-ditches, where complete, similar in dimensions to those of 14.
16. adjacent to Brownhill Inclosure, SZ228999.	Area of irregular ground disturbance associated with single length of much wasted bank-and-ditch.
17. Plain Heath (Thorney Hill Holms), SU212003.	Complex of enclosure banks-and-ditches extending onto reseeded area and occupying upwards of 50 acres. Except where flattened and rolled, on reseeded area, these are similar in dimensions to those of 14.
18. Setley Plain, SZ296996.	Large areas of Setley Plain and the slopes of adjacent Three Beeches Bottom and Milking Pound Bottom are occupied by the remains of extensive field systems, the banks-and-ditches of which vary in dimensions, and which probably represent enclosures made at different periods. Overall picture incomplete, but detailed mapping may reveal enclosed areas comparable in size to the Crockford complex.
19. Holmsley Ridge, SU215010.	Incomplete sections of enclosure bank-and-ditch which may at one time have enclosed upwards of <i>c.</i> 15 acres. It is conceivable that this was the site of a former enclosure attached to nearby Holmsley Lodge, originally a keeper's lodge.
20. Long Slade Bottom, SU274002.	Faint outlines of field system visible on reseeded area and continuing into adjacent gorse.
21. Whitefield Moor, SU277024.	Outlines of field banks visible on reseeded area.
22. South of Norley Inclosure, SZ345981.	Complex of small enclosures each similar in size to those of sites 1-13 but banks-and-ditches considerably more wasted and silted. At least two intakes continue into Norley Inclosure, dated 1808-20 and presumably predate it.
23. N.E. of Durns Town, SZ293990; N. of Durns Town, SZ286990.	Large areas of heath occupied by ploughing features, at one point exactly demarcated by gorse/grass association in contrast to heather moor; in other cases less clearly marked. No evidence of enclosure, save that O.S. field staff record hollow way or field bank of probable medieval origin.
24. Beaulieu Heath (East),	Ground disturbance, much of it identifiable as ploughing features visible on gorse areas recently burnt. Much of area under too dense a cover of gorse to examine thoroughly but regular undulations of the ground noted. At SU405045 ploughing features especially clear, running out onto heather moor and individual strips, as at one point in site 23, forming points of gorse jutting into heather. 'Strip-cultivation' noted in area by the late O. G. S. Crawford.

### ACKNOWLEDGMENTS

We are indebted to many friends and colleagues for comments and assistance, in particular to Mr A. Aberg (formerly Tudor House Museum, Southampton), Mr W. A. Cadman (Deputy Surveyor of the New Forest), Prof. G. W. Dimbleby (Institute of Archaeology, University of London), Dr N. W. Moore (The Nature Conservancy), Mr R. Webster (Department of Agriculture, Oxford University) and Mr W. C. Woodhouse (Ordnance Survey, Archaeological Division). One of us (B.L.J.) wishes to thank the Trustees of the Vaughan Cornish Bequest, University of Oxford, for a research grant towards the cost of the present work.

### NOTE ADDED IN PRESS

Since this paper was prepared further field work has added a number of sites and some evidence has been forthcoming (mainly from soil pollen analysis) which confirms that abandoned enclosures on the Open Forest date from a variety of periods.

PLATE I.



*(Photograph (by E. L. Jones) copyright, Department of Agriculture, Oxford University.*

Looking south-west along the northern edge of the abandoned enclosures at Crockford, Beaulieu Heath (West), (GR: SZ355993). Ranging rods mark the bank and outside ditch. Note the contrast between the gorse cover of the bank and enclosures and the heather moor outside.



PLATE II.



*[Photograph (by E. L. Jones) copyright, Department of Agriculture, Oxford University.]*

The northern edge of two adjacent, abandoned enclosures at Rossen Gutter (GR: SZ345984). Ranging rods mark the banks and outside ditches. Note the contrast between the gorse cover of the banks and enclosures and the stretch of heather outside.