Report

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NEW FOREST CICADA (*Cicadetta montana* Scopoli) (Hemiptera: Cicadidae): Progress Report 2007

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1.1. Summary

This report summarises work on the New Forest Cicada during 2007.

At Gibbet Wood no cicada turrets, singing males or current year's egg nests were recorded.

Temperature records are presented from miniature temperature loggers installed at two different depths below the ground in Gibbet Wood, two were also buried in two differing areas of habitat in Island Thorns Inclosure.

Habitat management through tree-felling was completed between October 2006 and February 2007.

No cicada song was heard in the New Forest during 2007. Coverage at Gibbet, Denny and Matley Woods, Ferny Crofts, Raven's Nest Inclosure, Pig Bush and Honey Hill, Franchises Wood, Island Thorns and Furzy Lawn Inclosures was good, so we may conclude that cicadas were either absent or present in exceedingly low numbers.

Suggestions for future research, and monitoring are presented.

1.2 Monitoring Cicadas at Gibbet Wood in 2007

1.2.1. Turrets

One visit was made to the glades to search for the presence of pre-emergence turrets on 3rd May. Despite a thorough search of the whole area no earthworks resembling turrets could be found.

1.2.2. Singing Males

Four visits were made to listen for the presence of singing males. The visit dates were 1st, 5th, 10th and 23rd June. All visits were made between 10:00 and 16:00hrs, and only when the temperature was greater than 18°C and the wind was only slight. No cicada song was heard during any of the visits.

1.2.3. Egg Nests

A search was made for egg nests during the visit on 23rd June but no nests of the current year were found.

1.3. Other Monitoring at Gibbet Wood in 2007

1.3.1. Temperature Logging

Miniature temperature loggers (Tinytalk II) were placed in the soil at two depths (5 and 15 mm) in Glades 1 and 4 at Gibbet Wood in the same positions in previous years. Two loggers were also placed at 5 mm depth at Island Thorns, one in an open area after clear felling, and the other in a clearing in a replanted conifer plantation. The full records of temperatures (°C) were from 7/2/06 to 20/09/07 at 3-hourly intervals (1800 records); unfortunately 3 of the loggers were disturbed. The logger at Island Thorns clear fell has not been recovered, and the two loggers in Glade 4 at Gibbet Wood had curtailed records (5 mm depth moved on 24/2/07 and at 15 mm moved on 4/5/07).

All available data from the temperatures loggers (1977-2007) have been collated in an ACCESS database (cictemps.mdb).

The results for all the full runs of data and for the partial run at Glade 4 15 mm depth are given in Figure 1. The comparative results for the smaller Glade 4 which have shown an interesting sequence of steady cooling were not available in 2007 because of the disturbance to the loggers.

The temperatures in Glade 1 at Gibbet Wood in Glade 1 show less difference than usual for the two depth measures, but as usual those at the 15 mm depth were lower and with less diurnal fluctuations. In comparison to previous years (average 2000-2006) the maximum daily temperatures in Glade 1 were more variable in the spring and sometimes warmer than the average. However in summer the site was definitely cooler because of the effects of increasing shade (Fig. 2).

The Island Thorns replant site was distinctly colder and with less diurnal movement. The marked difference to Gibbet Wood Glade 1 (at 5 mm) is more clearly shown by the contrast in maximum daily temperatures in 2007. (Fig.3). The difference is again more obvious in late spring and summer when the shading by bracken had increased.

Habitats for *C. montana* are successional and temperature records have now been made for ten years, which may help in understanding how long the habitats remain suitable. Fig. 4 shows the number of days with temperatures >19.9°C on all the sites. The numbers of days at Gibbet Glade 1 had been reasonably consistent, varying between 51 and 66, but in 2007 this fell to only 33 days. The results for Island Thorns Replant have been less obviously trending in relation to successional change in shading, with 2006 having more warm days, possibly the ambient heat stored beneath the dense low conifer canopy affected the recording.

1.3.2 Discussion

Cicada activities such as turret building, emergence, flight, and oviposition are temperature related. Grant & Ward 1992 found that *C. montana* sang more readily at temperatures >19.9ºC. In many parts of western Europe *C. montana* occurs on hot south-facing slopes and these are often areas that are much colder in winter than the UK. It seems likely therefore that the decline in UK populations is related to lack of suitable habitat with warmer temperatures in spring and summer. Pinchen & Ward (2003) described gradients in soil temperature and diurnal fluctuations and suggested how these might affect cicada nymphs in the burrows and turrets.

Gibbet Wood Glade 1 has been more consistently warm over the years of observations while there have been sharper falls in temperatures in other sites studied. However in 2007 the results suggested that this glade was now following the expected successional pattern of increasing shade and lower temperatures. The replanted area at Island Thorns ((clear-fell)) as compared to Gibbet Glade 1 was cooler during the recording period and illustrated the vulnerability of sites with faster succession in becoming less suitable as cicada habitats.

1.3.3 Other Insects Recorded

A number of insects were recorded in the glades at Gibbet Wood, whilst surveying for cicadas. A list of those species recorded appears below, 306 insect species have been recorded here between 1994 and 2006. All data has been entered into an ACCESS database (*cicada3*). All records have also been submitted to the relevant county and national recorders.

3rd May
Lepidoptera: Butterflies
Gonepteryx rhamni, Speckled Wood
Hymenoptera: Aculeata
Andrena haemorrhoa

1st June
Orthoptera and allies:
Nemobius sylvestris **(N)**, *Tetrix undulata*
Lepidoptera: Butterflies
Inachis io
Diptera: Hoverflies
Platycheirus albimanus, Eristalis pertinax, Melanostoma scalare, Episyrphus balteatus, Meliscaeva cincta, Epistrophe eligans
Diptera: Beeflies
Bombylius major
Hymenoptera: Aculeates
B. pascuorum, B. terrestris Apis mellifera, Vespula vulgaris, Andrena haemorrhoa, Nomada flava

5th June Orthoptera and allies
Nemobius sylvestris **(N)**, *Tetrix undulata, Chorthippus brunneus, Chorthippus parallelus*
Diptera: Hoverflies
Platycheirus albimanus, Epistrophe eligans, Eristalis pertinax, Eristalis tenax, Melanostoma scalare

10th June Orthoptera and Allies
Tetrix undulata, Chorthippus parallelus, Chorthippus brunneus
Diptera: Hoverflies
Melanostoma scalare, Epistrophe eligans, Eristalis pertinax, Eristalis arbustorum
Hymenoptera, Apidae
Apis mellifera

23rd June Orthoptera and Allies
Chorthippus parallelus, Chorthippus brunneus, Omocestus rufipes **(N)**,
Diptera: Hoverflies
Myathropa florea, Platycheirus albimanus, Melanostoma scalare, Syritta pipiens, Epistrophe eligans, Episyrphus balteatus
Diptera: Brachycera
Dioctria atricapilla
Hymenoptera: Aculeata
Bombus pratorum

1.4. Other Possible Cicada Sites

1.4.1. Denny and Matley Woods

Four visits were made to Denny and Matley Woods on 26th April, 2nd, 12th June and 8th July to search for pre-emergence turrets, and to search for the presence of singing males. Visits were made between 10:00 and 16:00hrs, when the temperature was above 18°C and the wind only slight. No cicada song was heard during any of the visits.

1.4.2 King's Garn Gutter

This area was visited on three occasions, to search for singing males and egg nests. The visits were made on 3rd May and 5th and 23rd June. No evidence of cicadas was recorded during any of the visits.

1.4.3 Furzy Lawn Inclosure

Following the discovery of a possible turret and hearing possible song in 2000 this area has been visited with more frequency. Only one visit was made during 2007; on 1st June. No turrets or structures resembling turrets were found and no instances of song recorded.

1.4.4 Island Thorns Inclosure

This area had been identified as having suitable looking habitat during survey in 2001. One visit was made to search for singing adults on 9th June. No evidence of cicadas was recorded.

1.4.5 Raven's Nest Inclosure (SU256147)

This area was visited on 10th June to listen for cicada song. The proximity of this clear-fell/replant area to Gibbet Wood suggested it should be worth visiting. Suitable habitat exists throughout much of the area, but no cicada song was heard.

1.4.6 Bramshaw Wood area (SU2516)

One visit was made to this area (including Bramshaw Inclosure, Judds Hill and Rushy Slab) on 10th June, searches were made of a number of suitable-looking south-facing glades and small clearings. No evidence of cicadas was recorded.

1.5 Reports of Cicadas

There were no reports of cicadas received during the year.

1.6. Photographic Monitoring

Fixed point photography was continued in the glades at Gibbet Wood with the photographs being taken on 12th October. Plate 1 illustrates the current condition of four glades.
Plate 2 illustrates the two locations of temperature loggers in Island Thorns Inclosure.

1.7. Habitat Management Works

Felling work was completed in Glades 1 and 3 at Gibbet Wood by Forestry Commission personnel between October 2006 and February 2007 following a site meeting with FC staff in September 2006.

Proposals were made to spray the bracken regrowth in all the glades during July but prolonged periods of heavy rainfall prevented this taking place. This work is now scheduled to be undertaken in July 2008.

It is hoped that the increased light levels available in the glades will be of benefit to the ground flora and invertebrate populations already present, in addition to continuing to provide ideal conditions for the cicada.

1.8. Discussion

1.8.1. Monitoring and Research

The monitoring of any signs of cicadas should continue at Gibbet Wood. This includes searching for pre-emergence turrets, egg nests and listening for singing males.

Equal attention should also be paid to areas highlighted from previous surveys as time permits. These priority sites are Denny and Matley Woods, Pig Bush and Honey Hill, Ferny Crofts, and Raven's Nest, Island Thorns and Furzy Lawn Inclosures and Bramshaw Wood.

1.9. References

GRANT, J.A. & WARD, L.K. 1992. English Nature Species recovery programme - New Forest cicada (Cicadetta montana Scopoli) (Hemiptera: Cicadidae). pp 52 + 6 figures. English Nature/NERC Contract (T09056k1)

PINCHEN B J & WARD L.K. 2000. Species Recovery Programme 2000. New Forest cicada (Cicadetta montana Scopoli) (Hemiptera: Cicadidae): Progress Report 2000. Contract NO: FST20-37-06 SRP – New Forest Invertebrates. Report to English Nature, November 2000. Pp 27.

PINCHEN, B.J & WARD, L.K. 2003 Species Recovery Programme 2002. New Forest cicada (Cicadetta montana Scopoli) (Hemiptera: Cicadidae): Progress Report 2002. Contract NO: CPAU/03/03/157 – New Forest Cicada Survey Work. Contract Report to English Nature, January 2003. Pp 38

2.0. Acknowledgements

We acknowledge the help and assistance of Dr David Sheppard, Natural England, Peterborough; and the Forestry Commission in the New Forest.

The New Forest Cicada Steering Group wishes to acknowledge the financial support of Natural England.

2.1. Figures

1. Temperatures (°C) 2007 at Gibbet Wood in Glade 1 at two depths and the curtailed records for Glade 4 at 15 mm (The 5 mm depth logger only ran until 24/2/07). Temperatures at Island Thorns on the replant area are shown, but the logger on the clear-fell area was lost.

2. Temperature °C in Gibbet Glade 1 at 5 mm depth in 2007 compared to the mean 2000-2006.

3. Maximum daily temperature (°C) at 5 mm at Gibbet Wood (Glade 1) and at Island Thorns Replanted area.

4. Numbers of days April-July1997-2006 with temperature >19.9°C at Gibbet Wood and in the cleared and replanted areas at Island Thorns (Belgian cicada site in 2001 shown for reference) (loggers at 5 mm).

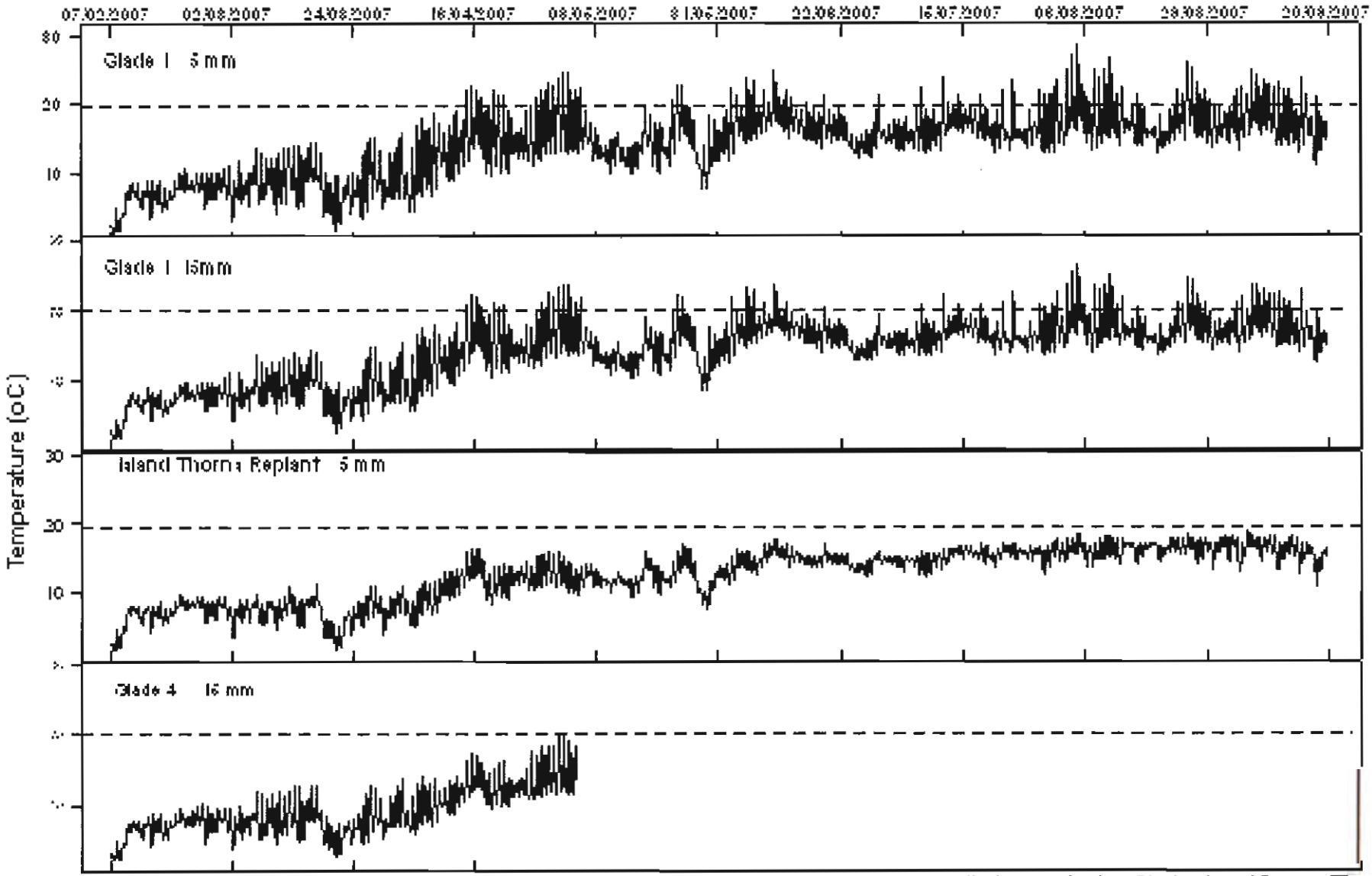


Fig.1 Temperatures (oC) 2007 at Gibbet Wood in Glade 1 at two depths and the curtailed records for Glade 4 at 15 mm (The 5mm depth logger only ran until 24/2/07). Temperatures at Island Thorns on the replant area are shown, but the logger on the clear-fell area was lost.

Fig. 2. Temperature oC in Gibbet Glade 1 at 5mm depth in 2007 compared to the mean 2000-2006

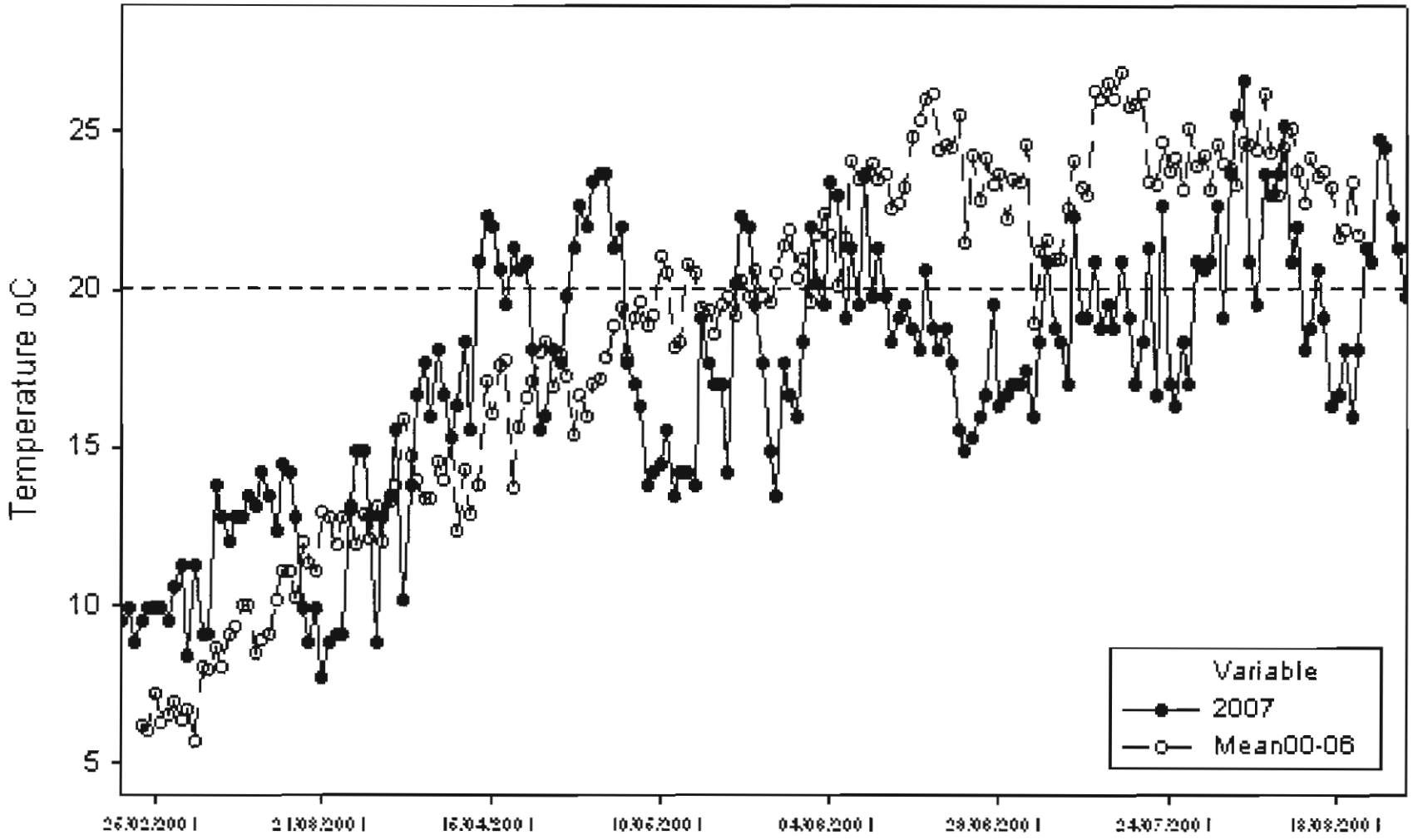


Fig 3 Maximum daily temperature (oC) at 5mm at Gibbet Wood (Glade 1) and at Island Thorns Replanted area

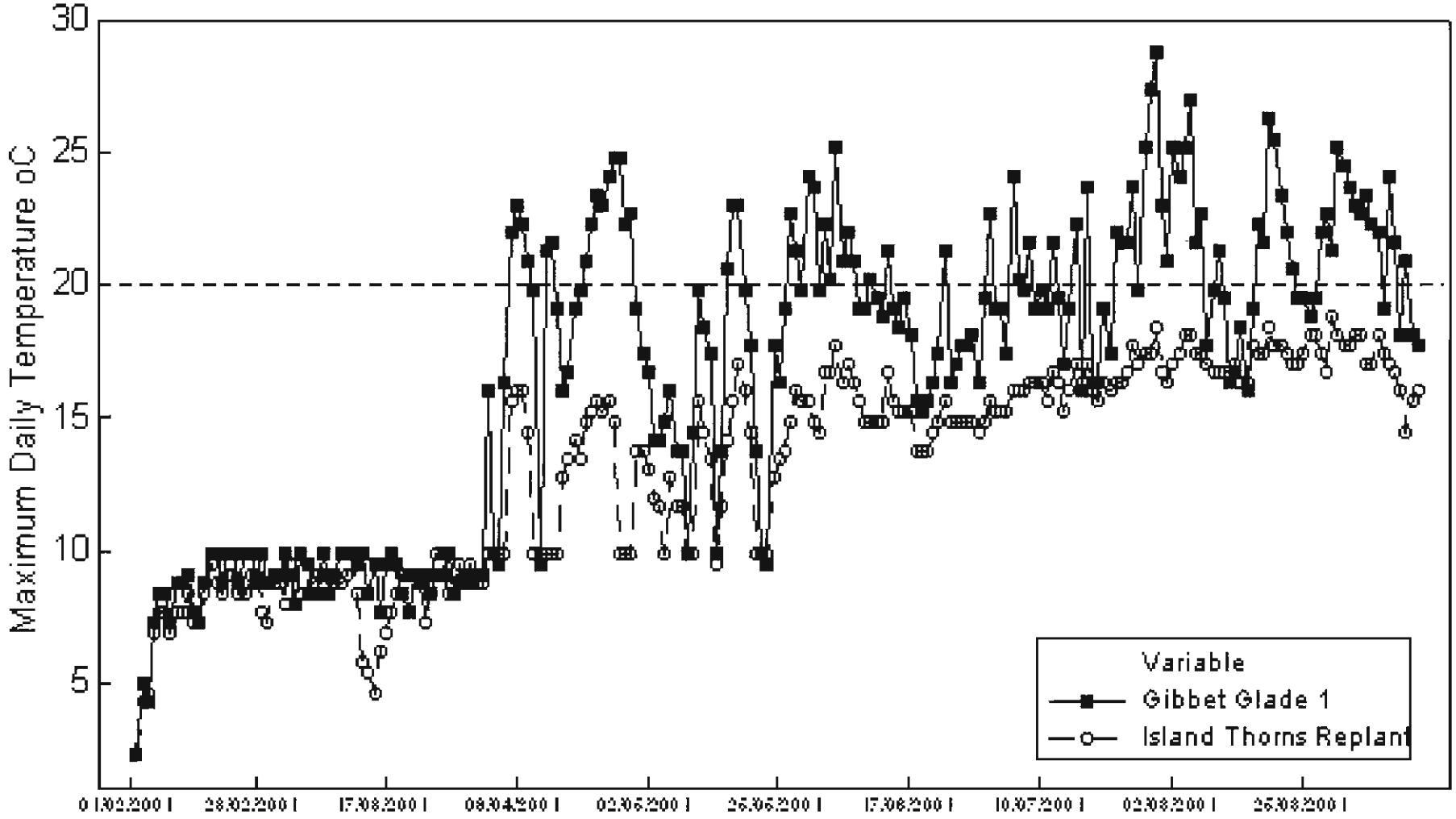
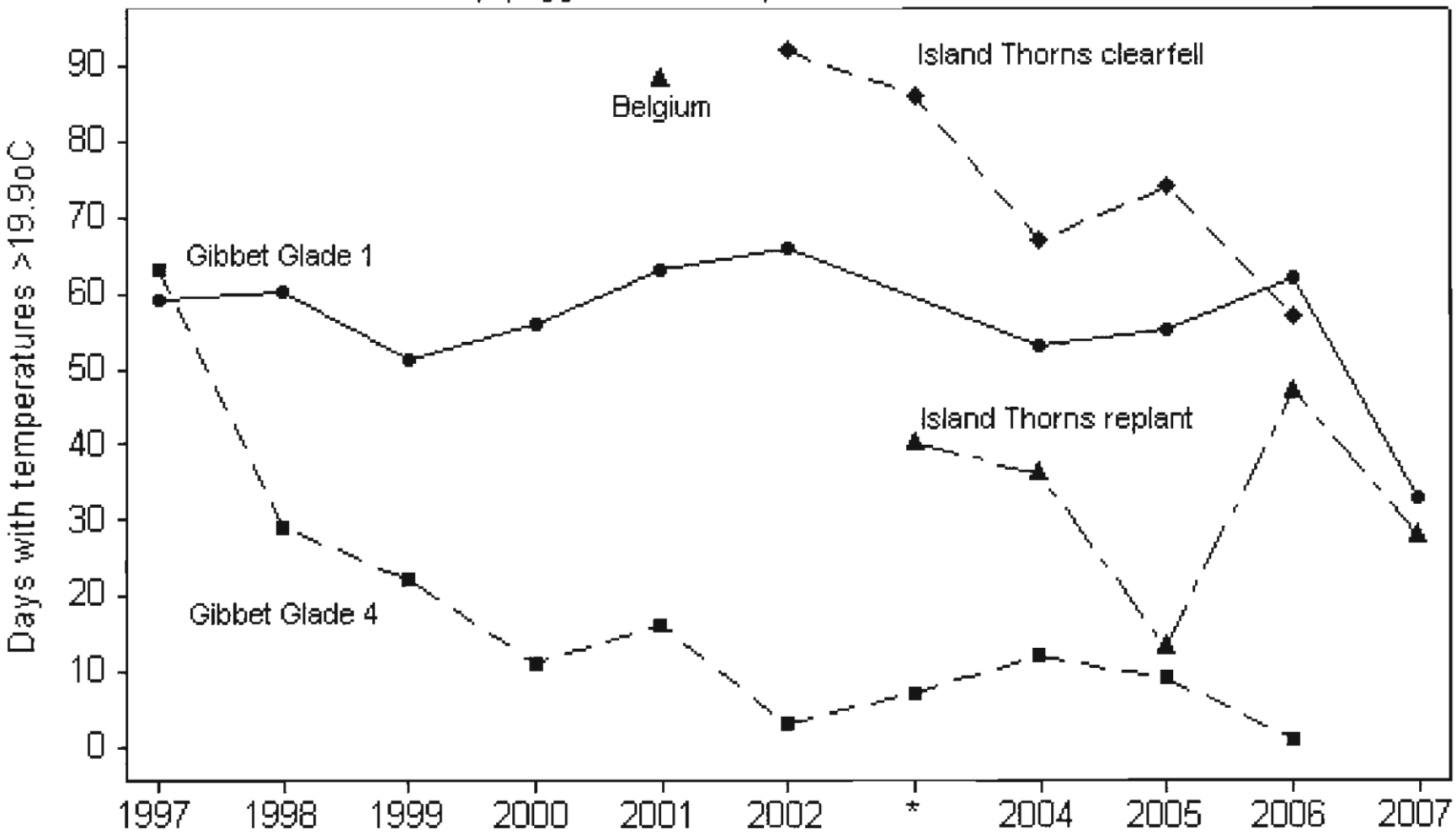


Fig. 4. Numbers of days April-July 1997-2007 with temperature >19.9 oC at Gibbet Wood and in the cleared and replanted areas at Island Thorns (Belgian cicada site in 2001 shown for reference) (loggers at 5 mm)



2.2. Plates

Plate 1

2.2.1 Glade 1 - *Molinia caerulea* growing well, but shading by bracken and shrubs increasing.

2.2.2 Glade 2 - Good growth of *Molinia caerulea* which has been grazed during the winter months, clearfelling has opened this glade dramatically.

2.2.3 Glade 3 - Oak covering part of the glade has now been cleared but bracken encroachment has increased.

2.2.4 Glade 4 - Shading by bracken and shrubs increasing further.

Plate 2

2.2.5 Island Thorns Inclosure, showing locations of two temperature loggers.

2.2.1

2.2.2

2.2.3

2.2.4

Plate 2

2.2.5. Island Thorns Inclosure, showing locations of two temperature loggers.

Clearfell area

Replant area